STATE OF WASHINGTON

ENERGY FACILITY SITE EVALUATION COUNCIL

PO Box 43172 • Olympia, Washington 98504-3172

October 31, 2023

Dear Reader:

The Energy Facility Site Evaluation Council (EFSEC) is pleased to present the Environmental Impact Statement (EIS) for the proposed Horse Heaven Wind Farm project (the Proposed Facility). The proponent, Horse Heaven Wind Farm, LLC (the Applicant), is indirectly owned by Scout Clean Energy, LLC, a renewable energy development company headquartered in Boulder, Colorado. The Applicant has applied for a Site Certification Agreement with EFSEC to construct and operate a renewable energy generation facility that would have a nameplate energy capacity of up to 1,150 megawatts. The Proposed Facility would consist of a combination of wind and solar facilities, as well as battery energy storage systems, and would be located approximately 4 miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area along the Columbia River in unincorporated Benton County.

Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility.

As the state lead agency, EFSEC has prepared the EIS in accordance with the Washington State Environmental Policy Act (SEPA). The purpose of the EIS is to evaluate the potential impacts of constructing and operating the Proposed Facility.

During EFSEC's SEPA scoping phase, areas of concern associated with the Proposed Facility were identified and subsequently addressed in this EIS. The EIS was prepared with information received from agencies, stakeholders, and members of the public.

The EIS evaluates impacts from the construction, operation, and decommissioning stages of the Proposed Facility, including a cumulative environmental impact analysis. In addition to the Proposed Facility, the EIS evaluates a no-action alternative.

The following resource areas were evaluated in the Draft EIS:

- Earth Resources
- Air Quality
- Water Resources
- Vegetation
- Wildlife and Habitat
- Energy and Natural Resources
- Land and Shoreline Use
- Historic and Cultural Resources
- Visual Aspects, Light and Glare
- Noise and Vibration
- Recreation
- Public Health and Safety
- Transportation
- Public Services and Utilities
- Socioeconomics

The Draft EIS was issued on December 19, 2022. The comment period began on December 19, 2022 and concluded on February 1, 2023. A public hearing on the Draft EIS was held virtually on February 1, 2023. The event was attended by members of the public, representatives of governmental agencies, tribal governments, nongovernmental organizations, private individuals, and representatives of Horse Heaven Wind Farm, LLC.

Significant impacts are understood to be those with a reasonable likelihood of more than moderate adverse effects on environmental quality. The EIS identified recommended mitigation measures to address potentially significant adverse environmental impacts from the Proposed Facility. In some instances, the identified mitigation would reduce, but not completely eliminate, the significance of the adverse impact. These impacts are identified within the EIS as unavoidable significant adverse environmental impacts.

The EIS is available on EFSEC's project website at www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. For further information regarding this proposal or to request a physical copy of the EIS, you may contact the Energy Facility Site Evaluation Council at (360) 664-1345 or efsec@efsec.wa.gov.

Sincerely,

Sonia E. Bumpus
EFSEC Director

State of Washington

Energy Facility Site Evaluation Council

FACT SHEET

Horse Heaven Wind Farm
Final Environmental Impact Statement

Proposal Applicant:

Horse Heaven Wind Farm, LLC

Lead Agency and Responsible Official:

Washington State Energy Facility Site Evaluation Council (EFSEC);

Sonia Bumpus, EFSEC Director

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Physical address: 621 Woodland Square Loop SE, Lacey WA 98503

Abstract:

Horse Heaven Wind Farm, LLC (the Applicant) is proposing to construct and operate the Horse Heaven Wind Farm in unincorporated Benton County, Washington, within the Horse Heaven Hills area. The Project would consist of a renewable energy generation facility that, as stated in the Application for Site Certification (ASC), would have a nameplate energy generating capacity of up to 1,150 megawatts (MW) for a combination of wind and solar facilities, as well as battery energy storage systems (BESS).

Only the Proposed Action and the No Action Alternative were carried forward for detailed analysis in this Environmental Impact Statement (EIS). However, impacts associated with two turbine height/number options and three solar array sites are discussed individually when information or differences are known.

Project Location:

The Project is located approximately 4 miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area, along the Columbia River.

Project Location

Required Permits, Approvals, and Licenses:

EFSEC's Site Certification Agreement (SCA) preempts otherwise applicable state and local regulatory permits pursuant to Revised Code of Washington (RCW) 80.50.110 and RCW 80.50.120. For informational purposes, Table 1-1 in the EIS provides a list of these preempted state and local permitting requirements as well as federally delegated permits and requirements.

Authors and Principal contributors to the DEIS:

The EIS was prepared at EFSEC's direction by its independent consultant, WSP. Reports supporting the EIS were completed by Golder Associates Ltd., and SWCA Environmental Consultants. Additional information on the authors and principal contributors is presented in Chapter 7 of the EIS.

Date of EIS Issuance: October 31, 2023

Date of Final Lead Agency Action:

After its evaluation is complete, EFSEC will submit a recommendation to the governor. If EFSEC recommends approval of the Facility, EFSEC will submit a draft SCA for the governor's signature. Within 60 days of receipt of EFSEC's recommendation, the governor may approve the Facility, reject the Facility, or direct EFSEC to reconsider the SCA. If an Application for Site Certification is denied, the Project cannot be constructed and operated. The date of the governor's ultimate decision is not currently known.

Availability of the EIS:

The document is available at no cost on the EFSEC website at: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project.

To obtain a printed copy, CD or USB drive of the EIS (for the cost of production), please contact efsec@efsec.wa.gov or (360) 664-1345.

The document is also available as a reference at local libraries.

Libraries where an Electronic EIS is Available:

1. Mid-Columbia Libraries- Kennewick Branch
1620 S. Union Street
Kennewick, WA 99338

2. Mid-Columbia Libraries- Keewydin Park Branch
405 S. Dayton Street
Kennewick,
WA 99336

3. Mid-Columbia Libraries- Pasco Branch
1320 W. Hopkins Street
Pasco, WA 99301

4. Mid-Columbia Libraries- Prosser Branch
902 7th Street
Prosser, WA 99350

5. Mid-Columbia Libraries- West Pasco Branch
7525 Wrigley Drive
Pasco, WA 99301

6. Mid-Columbia Libraries- West Richland Branch
3803 W. Van Giesen Street, West Richland, WA 99353

7. Mid-Columbia Libraries- Benton City Branch
810 Horne Drive
Benton City, WA 99320

8. Richland Public Library
955 Northgate Drive
Richland, WA 99352

9. Washington State Library
Point Plaza East
6880 Capitol Boulevard
Tumwater, WA 98501

Location of Background Information:

Documents regarding the SCA, scoping comments, public comments, land use, and adjudication can be found at https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project.

The website also contains data requests, relevant correspondence from the Applicant, EFSEC, and other interested stakeholders on various aspects of the Application for Site Certification review and EIS process and is regularly updated with such information.

Contact for Additional Information:

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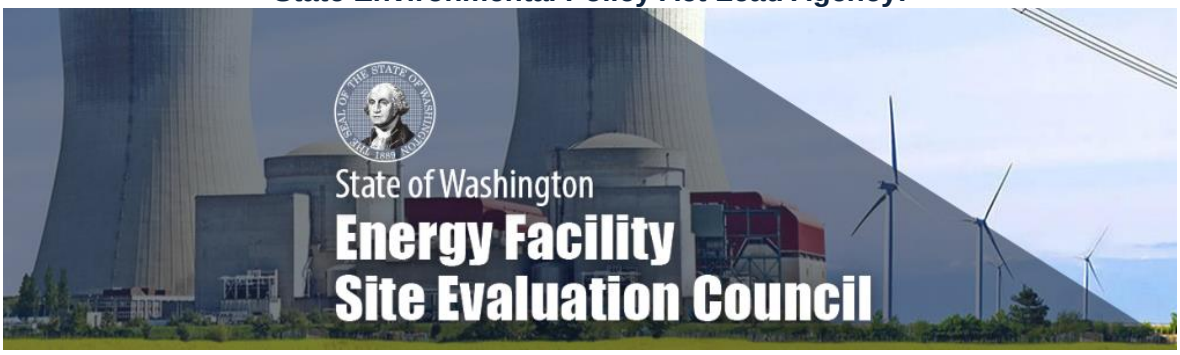
Horse Heaven Wind Farm

Final Environmental Impact Statement

October 2023

State Environmental Policy Act Lead Agency:



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ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
ACEC	Area of Critical Environmental Concern
ADLS	Aircraft Detection Lighting System
ADT	average daily traffic
APP	Avoidance and Protection Plan
Applicant	Horse Heaven Wind Farm, LLC
ARM	Ambient Ratio Method
ASC	Application for Site Certification
ASCE	American Society of Civil Engineers
ASOS	Automated Surface Observing Systems
ASR	aquifer storage and recovery
AVA	American Viticultural Area
B.P.	before present
BBCS	Bird and Bat Conservation Strategy
BCAA	Benton Clean Air Agency
BCC	Benton County Code
BCEM	Benton County Emergency Management
BDI	Basin Disposal, Inc.
Benton PUD	Benton County Public Utility District
Benton REA	Benton County Rural Electric Association
BESS	battery energy storage system
bgs	below ground surface
BFCOG	Benton-Franklin Council of Governments
BFEDD	Benton-Franklin Economic Development District
bhp	brake horse power
BLM	Bureau of Land Management
BMP	best management practice
BPA	Bonneville Power Administration
CAA	Clean Air Act
CadnaA	Computer Aided Noise Abatement
CARA	Critical Aquifer Recharge Area
CCS	crypto-crystalline silicate
CEQ	Council on Environmental Quality
CESA	Clean Energy States Alliance
CFR	Code of Federal Regulations
CH_4	methane
CIE	Commission Internationale de l'Eclairage
cm	centimeters
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Columbia Ridge	Columbia Ridge Landfill and Green Energy Plant
CRP	U.S. Department of Agriculture's Conservation Reserve Program
CSZ	Cascadia Subduction Zone
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWA	Clean Water Act
DAHP	Department of Archaeology and Historic Preservation
dB	decibels
dBA	A-weighted decibels
DDT	dichlorodiphenyltrichloroethane
DEQ	Oregon Department of Environmental Quality
DNR	Washington State Department of Natural Resources
DSRP	Detailed Site Restoration Plan
Ecology	Washington State Department of Ecology
EDNA	Environmental Designation for Noise Abatement
EF	emissions factor
EFSEC	Washington Energy Facility Site Evaluation Council
EIS	Environmental Impact Statement
EJ	environmental justice
ELZ	Environmental Lighting Zone
EPA	U.S. Environmental Protection Agency

ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
FGTS	Freight and Goods Transportation System
FHWA	Federal Highway Administration
FMSIB	Freight Mobility Strategic Investment Board
FR	Federal Register
FRA	Federal Railroad Administration
FSAC	Freight Station Accounting Code
FTA	Federal Transit Administration
FTE	full-time equivalent
g CO_2e/kWh	grams of carbon dioxide equivalent per kilowatt hour
GAP	Gap Analysis Project
GE	General Electric
GHG	greenhouse gas
GMA	Washington State Growth Management Act
GWP	global warming potential
HAP	hazardous air pollutant
HCA	habitat concentration area
HRA	Historical Research Associates, Inc.
HV	high voltage
Hz	hertz
I-82	Interstate 82
I-84	Interstate 84
IAF-NGT	Ice Age Floods National Geologic Trail
IBC	International Building Code
IDP	Inadvertent Discovery Plan
IHLMP	Indirect Habitat Loss Management Plan
JARPA	Joint Aquatic Resource Permit Application
km	kilometers
km^2	square kilometers
KOP	key observation point
kV	kilovolts
LED	light-emitting diode
LEED	Leadership in Energy and Environmental Design
LFN	low-frequency noise
LNTE	low noise trailing edge
LOS	level of service
mag/$arcsec^2$	magnitudes per square arcsecond
met tower	meteorological tower
mm/s	millimeters per second
MOVES	Motor Vehicle Emission Simulator
MPD	Multiple Property Documentation
mph	miles per hour
MSA	Metropolitan Statistical Area
MSW	municipal solid waste
MW	megawatts
M_W	moment magnitude; *also* M
MWac	megawatts of alternative current
MW-hr	megawatt hours
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NCT	Notice Criteria Tool
Nez Perce	Nez Perce Tribe
NLCD	National Land Cover Database
NO_2	nitrogen dioxide
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRO	noise reduced operation
NSR	noise sensitive receptor
O&M	operation and maintenance
O_3	ozone
ODFW	Oregon Department of Fish and Wildlife
OFM	Washington State Office of Financial Management
OHV	off-highway vehicle
OHWL	Ordinary High Water Line
OPRD	Oregon Parks and Recreation Department
Pb	lead
PCFM	post-construction fatality monitoring

PGA	peak ground acceleration
PHS	Priority Habitats and Species
Plateau	Columbia Plateau
PM_{10}	particulate matter less than 10 microns
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
Project	Horse Heaven Wind Farm; *also* Proposed Action
Proposed Action	Horse Heaven Wind Farm; *also* Project
PUD	Public Utility District
PTAG	Pre-operational Technical Advisory Group
PV	photovoltaic
RCCH	RCCH Health Care Partners/Trios
RCW	Revised Code of Washington
RFD	reasonably foreseeable development
RV	recreational vehicle
Sandia	Sandia National Laboratories
SCA	Site Certification Agreement
SCADA	supervisory control and data acquisition
Scoping Notice	SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project
SECOMM	Southeast Communications Center
SEPA	Washington State Environmental Policy Act
SGHAT	Solar Glare Hazard Analyis Tool
SIP	State Implementation Plan
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SO_2	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasures
SPL	sound pressure level
SWPPP	Stormwater Pollution Prevention Plan
TAC	Technical Advisory Committee
TCP	traditional cultural property
TIA	Traffic Impact Assessment
TESC Plan	Temporary Erosion and Sediment Control Plan
TIP	transportation improvement program
TLG	TLG Transport
Tribes	Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Wanapum Tribe
TUS	traditional use study
TV	television
UE	utilities element
UFC	Unified Facilities Criteria
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UTC	Washington Utilities and Transportation Commission
VAA	Vegetation Area of Analysis
VMT	vehicle miles travelled
VOC	volatile organic compound
VRM	Visual Resource Management
WAC	Washington Administrative Code
Waste Management	Waste Management of Kennewick
WDFW	Washington Department of Fish and Wildlife
WHCWG	Wildlife Habitat Connectivity Working Group
WHR	Washington Heritage Register
WISAARD	Washington Information System for Architectural and Archaeological Records Data
WNHP	Washington Natural Heritage Program
WQI	Freshwater Quality Index
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
Yakama Nation	Confederated Tribes and Bands of the Yakama Nation
YFTB	Yakima Fold and Thrust Belt
ZOI	zone of influence

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EXECUTIVE SUMMARY

Horse Heaven Wind Farm, LLC (Applicant) is proposing to construct and operate the Horse Heaven Wind Farm (Project, or Proposed Action) in unincorporated Benton County, Washington, within the Horse Heaven Hills area. The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on the approval or denial of certain major energy facilities in Washington. This includes voluntary applicants, as in the case of the proposed Project.

ES-1 Purpose of this Environmental Impact Statement

During the site certification process, EFSEC reviewed the Application for Site Certification[1] (ASC) and is serving as the "lead agency" responsible for complying with the Washington State Environmental Policy Act (SEPA) procedural requirements (Washington Administrative Code [WAC] 463-47). EFSEC prepared this Environmental Impact Statement (EIS) under SEPA with the assistance of an independent consultant and cooperating state agency support, reviewing all Applicant-prepared information and analyses in the ASC and conducting additional analyses as needed during preparation of this EIS.

ES-2 Proposed Action and Alternatives

ES-2.1 Proposed Action: Horse Heaven Wind Farm Project

The Project would consist of a renewable energy generation facility that would have a nameplate generating capacity[2] of up to 1,150 megawatts[3] for a combination of wind and solar facilities, up to two battery energy storage systems (BESS), and other Project components, including underground and overhead electrical collection lines, transmission lines, underground communication lines, new Project substations, access roads, operations and maintenance facilities, and meteorological towers.

At its closest point, the Project would be located approximately 4 miles south/southwest of the City of Kennewick and the larger Tri-Cities urban area, along the Columbia River. **Figure ES-1** shows the Project Lease Boundary and Project vicinity. The Project's Lease Boundary (approximately 72,428 acres) incorporates all of the parcels for which the Applicant has executed a lease to construct the turbines, solar arrays, and associated facilities.

The Project's Wind Energy Micrositing Corridor encompasses 11,850 acres within the Lease Boundary and is defined as the areas where the turbines and supporting facilities would be sited during the final design. As shown in **Table ES-1**, the Applicant in the Final ASC seeks authorization for up to 231[4] turbine locations. The analysis presented in the EIS includes both the maximum number of turbines (244) and the maximum turbine height (671 feet), as stated in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and the amended request of 231 turbines presented in the Final ASC (Horse Heaven Wind Farm, LLC 2023). The analysis was performed for Turbine Option 1 and Turbine Option 2, and, for the purpose of analyzing the maximum footprint and impact, the EIS assumes that the road disturbance associated with Turbine Option 1 and Turbine Option 2 would be identical.

[1] An Application for Site Certification (ASC) is a formal submittal prepared by an applicant that provides EFSEC with information regarding the Applicant, the proposed project design and features, the natural environment, and the built environment in sufficient detail to enable EFSEC to go forward with its application review.

[2] Nameplate generating capacity is the amount of electricity a generator can produce when running at its maximum designed output.

[3] Since the initial ASC was submitted to EFSEC in February 2021, BPA has allowed interconnection requests that facilitate greater installed aggregate nameplate generating capacity. This is a result of newer equipment being more efficient than what was intended for installation at the facilities during design and permitting. Irrespective of BPA's change in policy, the maximum number of wind turbines, solar arrays, and BESS would not exceed what is presented in the Final ASC and analyzed in the EIS.

[4] Reflects the reduction in turbines from 244 turbines to 231 turbines for Option 1 and 150 to 147 for Turbine Option 2 proposed in the Final ASC (Horse Heaven Wind Farm, LLC 2023).

Table ES-1: Proposed Action - Wind Turbines

	Turbine Option 1	Turbine Option 2
Wind Turbines	231[a] turbines up to a maximum blade tip height of 499 feet[b]	147[a] turbines up to a maximum blade tip height of 671 feet[b]
Temporary Disturbance	1,014 acres[c]	
Permanent Disturbance	28 acres[d]	
Lease Boundary	72,428 acres	

Source: Table 2.1-1 and Table 2.3-1 of the Final ASC, Horse Heaven Wind Farm, LLC 2023
Note:
[a] Reflects the reduction in turbines from 244 turbines to 231 turbines for Option 1 and 150 to 147 for Turbine Option 2 proposed in the Final ASC (Horse Heaven Wind Farm, LLC 2023).
[b] As proposed in the Final ASC.
[c] As proposed in the Final ASC, the acreage reflects the reduction in turbines from 1,070 acres of temporary disturbance to 1,014 acres of temporary disturbance (Horse Heaven Wind Farm, LLC 2023).
[d] This value, specific to turbine-only disturbance, does not include supporting infrastructure, which is identified in Table 2-2 of this EIS. As proposed in the Final ASC, the acreage reflects the reduction in turbine disturbance from 30 acres of permanent disturbance to 28 acres of permanent disturbance (Horse Heaven Wind Farm, LLC 2023).

The Project's Solar Siting Areas, which include three locations under consideration for the proposed solar arrays, encompass 10,755 acres within the Lease Boundary. **Table ES-2** presents the temporary and permanent disturbance acreage for the solar siting and supporting infrastructure for the wind and solar facilities. Although this EIS analyzes the maximum impact acreage requested in the 2022 ASC and the reduced acreages presented in the Final ASC, the disturbance acreage presented in **Table ES-2** is based on the Final ASC. The wind energy components would be combined with the solar arrays, BESS, and other infrastructure to provide solar and wind energy.

Table ES-2: Proposed Action - Solar Siting and Supporting Infrastructure for Wind and Solar Facilities[a]

	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Solar Arrays in Fields		
East Solar Field[a]	12	639
County Well Solar Field	18	2,641
Sellards Solar Field	22	1,935
Total Disturbance Acreage of Solar Arrays in Fields	**52**	**5,215**
BESS[b]		
BESS adjacent to the Bofer Canyon - HH-East Substation	1	16
BESS adjacent to the Primary HH-West Step-Up Substation		
BESS adjacent to the Alternate HH-West Step-Up Substation		
Substations		
HH-East Substation	1.9	27
HH-West Substation		
HH-West Solar Substation and Switchyard		
HH-West Solar Switchyard		

Table ES-2: Proposed Action - Solar Siting and Supporting Infrastructure for Wind and Solar Facilities[a]

	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Supporting Infrastructure		
Roads,[c] Crane Paths[a], Laydown Yards[d], O&M Facilities, Met Towers	580.8[e]	185.5
Collector Lines		
Overhead	0.5[e]	<0.01
Underground	787[e]	0.06
Transmission Lines		
230 kV	235	0.02
500 kV	12[e]	<0.01
Total Disturbance Acreage of Supporting Infrastructure	**1,618.2**	**228.6**

Source: Table 2.1-1 of the Final ASC, Horse Heaven Wind Farm, LLC 2023

Note: For new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization.

[a] Updated acreage reflects the reduction in disturbance proposed in the Final ASC (Horse Heaven Wind Farm, LLC 2023).

[b] The Applicant provided three locations for consideration to construct two BESS.

[c] Includes new access roads and road modification (turning radius widening). This EIS assumes that road disturbance would be identical under both Option 1 and Option 2.

[d] In the Applicant's Final ASC, a third laydown yard was proposed to the north and outside of the Project Lease Boundary. Additionally, the western laydown yard was proposed outside of the micrositing corridor. The proposed disturbance for these laydown yards has been omitted from analysis within this EIS.

[e] Additional disturbance was proposed in the Applicant's Final ASC. Calculations of specific elements, omitting newly proposed disturbance, were completed independently using the spatial layers provided by the Applicant (Horse Heaven Wind Farm, LLC 2023). Newly proposed disturbance has been omitted from analysis within this EIS.

ASC = Application for Site Certification; BESS = battery energy storage system; EIS = Environmental Impact Statement; HH = Horse Heaven; kV = kilovolt; met tower=meteorological tower; O&M = operations and maintenance

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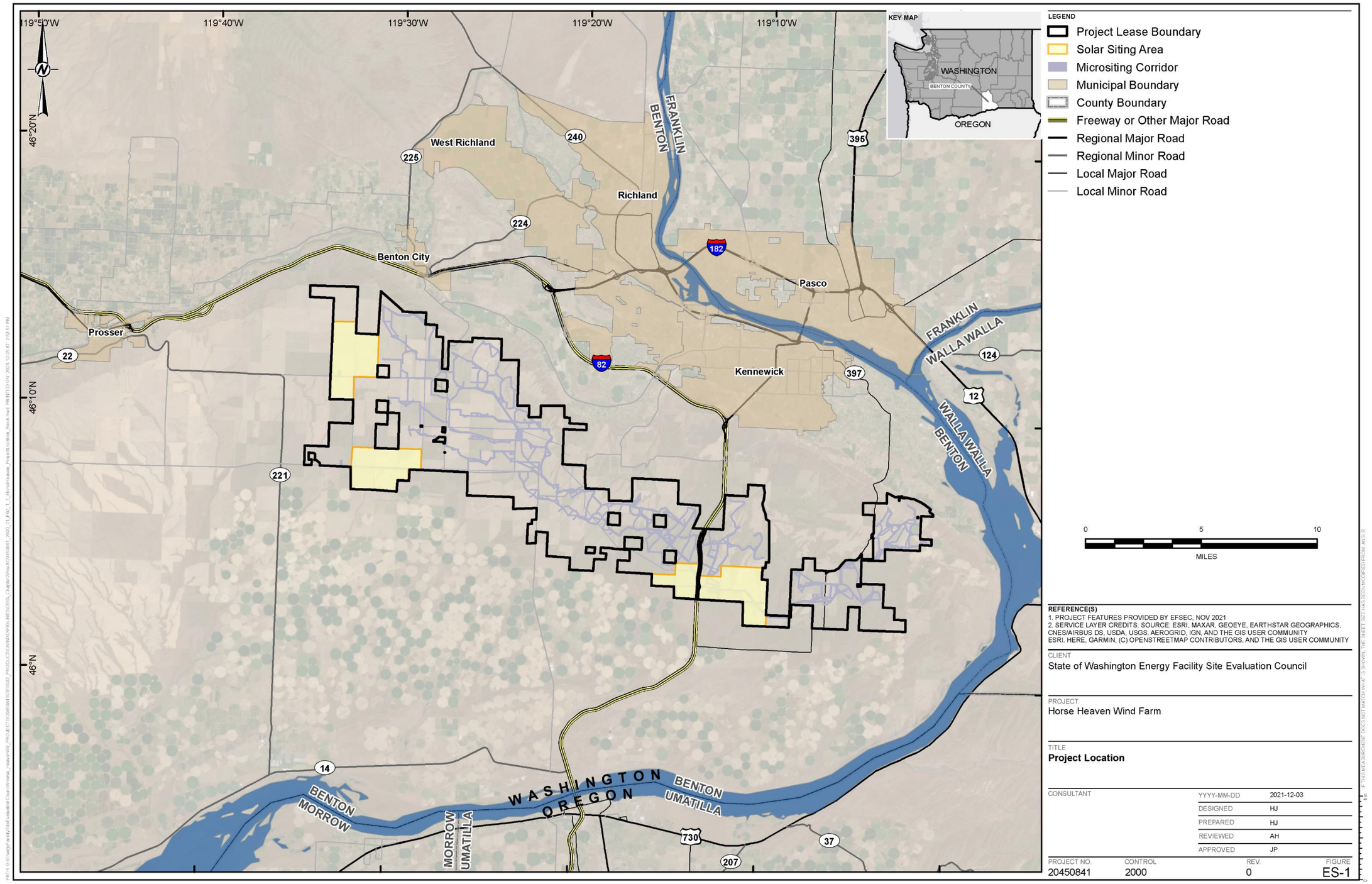

Figure ES-1: Project Lease Boundary and Project Vicinity

ES-2.2 Alternatives to the Proposed Action

Several alternatives were considered for analysis but were eliminated from detailed evaluation in the EIS because they would not generate the designed nameplate generating capacity required by the Applicant. The No Action Alternative was carried forward for analysis in the EIS. Under the No Action Alternative, the Project would not be constructed or operated, power would not be supplied by the Project, and the potential environmental impacts associated with the Project would not occur. As part of the No Action Alternative, existing agricultural use in the Lease Boundary would continue without interruption.

ES-3 Environmental Impact Analysis

ES-3.1 Approach to Impact Assessment

This EIS identifies impacts from the Proposed Action and the potential environmental impacts associated with the No Action Alternative. “Impacts” are the effects or consequences of actions (WAC 197-11-752) upon the environmental resources listed in ES-3.2. For example, an impact from grading during construction could result in the production of fugitive dust. The dust would then have the potential to affect various nearby resources such as surface waters, where it could contribute to nutrient loading, or, if it landed on neighboring vegetation, could smother, and kill the plants. In accordance with SEPA, this EIS weighs the likelihood of occurrence with the severity of an impact (WAC 197-11-794) and considers several factors when analyzing potential impacts.

This EIS presents an analysis of impacts for each of the three Project stages (i.e., pre-construction and construction, operation, and decommissioning) on the elements of the environment identified in ES-3.2. The impacts associated with the Proposed Action and under the No Action Alternative are described quantitatively if sufficient data or information were available to do so.

When detailed information was not available and that information was not essential to determining the level of adverse environmental impacts, impacts are described qualitatively. To characterize potential impacts, this analysis considers existing laws and regulations, conservation measures, and best management practices proposed by the Applicant in the 2022 ASC to avoid or reduce potential impacts at each Project stage. Following submittal of the 2022 ASC, the Applicant prepared a list of Post-Adjudication Applicant Commitments that are presented in the Final ASC. Impacts for each resource evaluated in Chapter 4 were re-analyzed with consideration of the anticipated effectiveness of the Post-Adjudication Applicant Commitments. If the Post-Adjudication Applicant Commitments were deemed to be effective in reducing the impact rating, the corresponding impact rating was modified to reflect the change. Further Applicant Commitments were provided subsequent to the Final ASC. Due to the late submittal of these post-Final ASC commitments, they were not incorporated into the EIS analysis, but are available to the EFSEC Council for consideration in their deliberations. Three types of environmental impacts are described in the EIS:

Direct impacts: These are the effects of an action (i.e., construction, operation and maintenance, or decommissioning) on a resource that occur at the same time and place as the action. An example of a direct impact would be increased noise levels experienced by residents living near a construction site.

Indirect impacts: These are impacts that are similar to direct impacts in that they are caused by an action; however, they occur later in time or further from the activity causing the impact. An example of an indirect impact would be a decline in numbers of a wildlife species due to fragmentation of that species’ habitat by installation of fencing.

Cumulative impacts: These are the combined results of incremental direct and indirect impacts on resources from a project or plan, past and present actions, and other reasonably foreseeable developments. An example of a cumulative impact would be if increased runoff and contaminants from construction were added to the volumes and levels of contamination from similar development projects surrounding the same wetland.

The EIS presents the discussion of impacts that could result from the comprehensive Project and the various individual components (e.g., Turbine Option 1, Turbine Option 2, solar arrays and supporting infrastructure). An analysis of the comprehensive Project evaluates the full extent of the Proposed Action's impacts. The additional information obtained from the various individual components can identify which, if any, components would contribute to a medium or high impact and will assist in further examination of possible options to mitigate the impact of those components and, ultimately, reduce the impact of the comprehensive Project.

ES-3.2 Environmental Resources Analyzed

The following resources of the built and natural environment are characterized for existing conditions and analyzed for potential impacts:

- Earth Resources (including seismic hazards)
- Air Quality
- Water Resources
- Vegetation
- Wildlife and Habitat
- Energy and Natural Resources
- Land and Shoreline Use
- Historic and Cultural Resources
- Visual Aspects, Light and Glare
- Noise and Vibration
- Recreation
- Public Health and Safety
- Transportation
- Public Services and Utilities
- Socioeconomics

ES-3.2.1 Special Studies

During the preparation of the EIS, EFSEC asked its independent contractor to prepare special studies related to collision risk of birds and bats with wind turbines and the visual impacts of turbines for the two turbine options (Turbine Option 1 and Turbine Option 2) described in ES-2.1. The following special studies are included as appendices to this EIS:

The Wind Turbine Wildlife Collision Risk Assessment: Horse Heaven Wind Farm: This special study, presented as Appendix 4.6-1 of the EIS, compares the potential bird and bat collision risk associated with each turbine option. The information and conclusions presented in the study are based on existing information collected during the Proposed Action's baseline studies and a review of published scientific literature pertaining to bird and bat interactions with wind turbines (GAL 2022).

Horse Heaven Wind Farm Project Final Visual Impact Assessment Report: This special study, presented as Appendix 3.10-2 of the EIS, focuses on potential visual impacts resulting from modification of the landscape and the response of viewers to those features. Additionally, the study analyzes whether the Proposed Action would be consistent with and comply with state and local visual resource guidance. The

information contained in the special study report was provided by the Applicant and supplemented with publicly available data where necessary. Information and conclusions presented in the special study focused on the introduction of the Proposed Action into the setting and characterization of long-term modifications to the existing landscape's form, line, color, and texture (SWCA 2023).

ES-3.3 Impacts from the Proposed Action for Which EFSEC Identified Mitigation and/or Significance

Mitigation measures can be implemented to reduce impacts associated with the construction, operation and maintenance, and decommissioning of the Project. **Attachment ES-3-1** presents a comprehensive list of EFSEC identified Mitigation Measures. Such measures may be imposed by EFSEC pursuant to their authority under Revised Code of Washington (RCW) 80.50 or through the use of their SEPA "substantive authority," which provides the ability to condition or deny a proposal based on identified environmental impacts (WAC 197-11-660).

Mitigation measures put forth by EFSEC in this EIS are identified by an abbreviation of the affected resource and sequential numbering system. If the same mitigation measure is recommended to address impacts to another resource later in the EIS, the mitigation measure retains its initial unique identifier. For example, mitigation measure ENR-5 is first recommended in the analysis of Energy and Natural Resources. ENR-5 is subsequently presented as a recommended mitigation measure to address impacts to Public Services and Utilities.

Taking mitigation into account, each impact identified in this EIS is categorized as significant or nonsignificant. **Tables ES-3 and ES-4** described below and attached to this Executive Summary as **Attachment ES-3-2** provide a summary of the impacts identified in this EIS:

Tables ES-3 (a, b, & c) summarize the impacts identified for each element of the environment (see Section ES-3.2 above for the complete list). The impacts are presented in respect to the comprehensive Project, mitigation identified by EFSEC, and the determination of significant unavoidable impacts that may occur during the construction, operation, and decommissioning of the Project. Impacts identified with a medium to high magnitude of impact are highlighted in light blue.

Tables ES-4 (a, b, & c) summarize the impacts identified for each element of the environment (see Section ES-3.2 above for the complete list). The impacts are presented in reference to Project components (Turbine Option 1, Turbine Option 2, solar arrays, BESS, and substations), mitigation identified by EFSEC, and the determination of significant unavoidable impacts that may occur during the construction, operation, and decommissioning of the Project. Impacts identified with no mitigation and with a negligible to low magnitude of impact were not included in these tables. Impacts identified with a medium to high magnitude of impact are highlighted in light blue. All impacts, including negligible and low magnitude impacts are included in the tables at the end of each resource Section 4.

EFSEC is the State of Washington agency that is responsible for making the decision about whether a potential impact is significant. "Significant" in SEPA means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred. This EIS weighs the likelihood of occurrence with the severity of an impact (WAC 197-11-794) when determining the significance of identified potential impacts (WAC 197-11-330 and WAC 197-11-794). "Significant unavoidable impacts" are impacts that remain significant, even after all measures committed to by the Applicant and mitigation recommended by EFSEC have been applied.

ES-3.4 Cumulative Impacts

When impacts are assessed for an individual proposed action, they may be determined less than significant, but when considered collectively (cumulatively) with the impacts of other actions, especially over a period of time, they can be significant (40 Code of Federal Regulations 1508.7). SEPA requires that agencies address cumulative impacts.

Cumulative impacts are the combined result of incremental direct and indirect impacts on resources of concern from a project or plan, past and present actions, and other reasonably foreseeable developments. Reasonably foreseeable developments generally include actions that are currently underway, formally proposed or planned, or highly likely to occur based on available information. The EIS identifies past, present, and reasonably foreseeable future developments that could interact with resources impacted by the Proposed Action and analyzes the potential for cumulative impacts.

Information about direct and indirect impacts of past and present actions is useful in identifying and predicting the level of impact a proposed action might have on the natural or built environment. However, the impacts of past actions may have no cumulative relationship to the impacts of a proposed action. To fully evaluate cumulative impacts, it is necessary to assess the type and extent of a proposed action's impacts and how the project and its alternatives would add to, modify, or mitigate impacts from past actions. In accordance with Council on Environmental Quality (CEQ) guidance, this cumulative impact analysis focuses on the current aggregate impacts of past actions without delving into the historical details of individual past projects (CEQ 2005).

Table ES-5 presents the resources that the Proposed Action would cumulatively impact in a meaningful way. It describes the direct or indirect impact that the Proposed Action would have for each resource, and whether that impact would be significant. It then identifies whether cumulative impacts to that resource have been identified from past and present actions and RFDs. Finally, it indicates whether the impact from the Proposed Action would make a meaningful contribution to a cumulative impact when combined with past and present actions and RFDs.

Table ES-5: Summary of Significance Determinations and Cumulative Impact

Section	Topic	Description of Impact from the Proposed Action	Significant Direct or Indirect Impact from the Proposed Action	Cumulative Impacts from Past and Present Actions and RFDs	Proposed Action Meaningfully Contributes to a Cumulative Impact
Vegetation	Priority Habitat	Loss and degradation of Priority Habitat	No	**Yes**	**Yes**
Vegetation	Special Status Plant Species	Loss and isolation of special status plant species	No	**Yes**	**Yes**
Wildlife and Habitat	Habitat Loss	Habitat loss and degradation	No	**Yes**	**Yes**
Wildlife and Habitat	Barriers to Movement and Fragmentation	Fencing as a barrier to movement and fragmentation of habitat due to Project footprint	No	**Yes**	**Yes**
Wildlife and Habitat	Wildlife Mortality	Mortalities from wildlife-vehicle collisions or turbine strikes	No	**Yes**	**Yes**
Wildlife and Habitat	Special Status Species	Loss of special status species from mortalities or loss or degradation of habitat	No	**Yes**	**Yes**
Historic and Cultural Resources	Archaeological Resources	Partial or complete loss of archaeological resources	**Yes**	**Yes**	**Yes**
Historic and Cultural Resources	Traditional Cultural Properties	Partial or complete loss of traditional cultural properties and resources	**Yes**	**Yes**	**Yes**
Visual Aspects, Light and Glare	Visual Aspects	Turbines would dominate the existing landscape and viewshed.	**Yes**	**Yes**	**Yes**
Visual Aspects, Light and Glare	Light and Glare	Security lighting would introduce sources of light and glare	No	**Yes**	**Yes**
Noise and Vibration	Noise	Noise from construction and Project components during operation.	No	**Yes**	**Yes**
Noise and Vibration	Vibration	Vibration during construction and decommissioning	No	No	No
Recreation	Recreation - Use	Reduction in access to available recreation lands	No	**Yes**	**Yes**
Recreation	Recreation – Public Health and Safety	Health and safety of paragliders and hang gliders	**Yes**	**Yes**	**Yes**
Transportation	Traffic Volume	Increased traffic volume from construction and decommissioning	No	**Yes**	**Yes**
Transportation	Level of Service	Decreased level of service for motorists, particularly at intersections close to Project	No	**Yes**	**Yes**
Transportation	Roadway Safety	Safety of motorists due to the presence and movement of heavy vehicles	No	**Yes**	**Yes**

ES-4 Key Issues Resolved from the Draft EIS

ES-4.1 Additional Analysis Completed

ES-4.1.1 Air Quality for Construction and Decommissioning

For the Draft EIS, the air quality environmental impact analysis was based on two phases of construction, which would reduce the amount of construction equipment operating at one time as compared to constructing all components in one phase. The Applicant provided air emission information based on the assumption that the Project would be constructed based on this two phase assumption (see Section 2.15 of the 2022 ASC).

For the final version of the EIS, supplemental emission calculations and air quality dispersion modeling was prepared by the Applicant in 2023. The two-phased approach to construction remains in the EIS and underlying air quality modeling. With the incorporation of additional air quality data, the EIS provides an updated air quality impact analysis based on computer dispersion modeling of concrete batch plant and emergency generator emissions, including a worst-case set of assumptions that captures the Applicant's desire for flexibility in overlapping construction activities.

ES-4.1.2 Transportation Impact Analysis

For the Draft EIS, transportation impacts for the Project were evaluated based on two phases of construction with limited information on haul routes and vehicle traffic. The Applicant prepared a Traffic Impact Analysis (TIA) for their Final ASC that provides supplemental information on the Project's impact on traffic conditions, road conditions, and safety (Horse Heaven Wind Farm, LLC 2023). The Applicant's TIA was developed in consultation with representatives from the Washington State Department of Transportation (WSDOT) South Central Region. The study evaluates existing and future traffic operations (with and without the proposed Project) at 29 existing intersections and the proposed site driveways serving two laydown areas and 10 roadway segments serving the Project site.

The study provided an analysis of roadway and intersection capacity during the weekday morning and weekday evening peak hours when the combination of existing traffic on the surrounding area roadways and new traffic associated with peak construction activity of the Project is expected to be greatest. The Applicant indicated that the turbines would be hauled from southern Washington, along I-82, to an interim laydown yard, outside of the Project Lease Boundary. The Applicant has not provided an analysis of the haulage of turbines from the interim laydown yard to the two laydown yards analyzed in this EIS. With the incorporation of the additional information provided in the Applicant's TIA, the EIS provides an updated analysis of impacts and mitigation for transportation.

ES-4.2 Significant Impacts Worst Case Analysis

ES-4.2.1 Cultural Resources

SEPA directs EFSEC to analyze adverse environmental impacts on cultural resources caused by the proposed Project. A third-party consultant has completed cultural resource investigations and inventory reports of both private land and Washington Department of Natural Resource-administered land within the Project Lease boundary. The Project would impact Traditional Cultural Properties (TCPs) that include but are not limited to spiritual sites, traditional use sites, and the specific geographic availability of foods and medicines. The Yakama Nation has stated that several TCPs would be impacted by the proposed Project. Furthermore, the Yakama Nation has indicated to the third-party consultant that a documented archaeological resource located within the Project Lease Boundary is directly associated with a TCP. Tribal coordination is currently ongoing and would continue through Project completion. The Yakama Nation has provided a map identifying impacts that Project components would have on TCPs that will be supplied to the EFSEC Council under separate cover in order to

maintain the confidentiality of Yakama Nation information. As allowed by RCW 43.21C.405(6), this map will not be displayed within the EIS due to its inclusion of confidential information. Any information on TCPs in the Project area and vicinity will remain confidential and will not be available to the public. In the meantime, EFSEC is required to include a worst-case analysis of adverse environmental impacts and likelihood of occurrence (WAC 197-11-080). A number of impacts on cultural resources, including TCPs, are identified as significant.

ES-4.3 Impacts and Mitigation Affecting Multiple Resources

ES-4.3.1 Wildlife, Cultural Resources, Visual Resources

Individual turbines may cause impacts on multiple resources such as cultural, visual, and/or wildlife resources. Figures illustrating turbines with impacts to multiple resources have been prepared for EFSEC and its Council members for review. The figures are intended to provide EFSEC and its Council members with information that could be used in the identification of specific turbines that have multiple impacts. Based on location and magnitude of impact, the Council could require additional mitigation including the removal or relocation of specific turbines within the Micrositing Corridor. Chapter 2 of the EIS includes a redacted version of the figures that are for illustrative purposes only and do not indicate the specific location of any sensitive or protected resource.

ES-4.3.2 Vegetation, Wildlife and Habitat

The EIS identifies loss of Priority Habitats, loss of wildlife habitat, degradation of habitat (e.g., indirect habitat loss), wildlife mortality, and creation of barriers to movement and habitat fragmentation as potential impacts to vegetation, wildlife, and habitat. The extent of these impacts may vary depending on the proximity of individual turbines to sensitive habitats (e.g., nests, Priority Habitats, movement corridors), height of the turbines, and siting of ancillary components.

EFSEC has identified mitigation measures, in addition to Applicant-identified commitments, to reduce impacts on vegetation, wildlife, and habitat. For vegetation, EFSEC has recommended mitigation measures to avoid and reduce impacts on trees and special status plants by requiring that these features be avoided, and additional pre-disturbance surveys be conducted. Further, EFSEC has recommended that an as-built report and offset calculation be provided once construction is complete.

For wildlife and habitat, these mitigation measures include the establishment of a Pre-Construction Technical Advisory Group and a Technical Advisory Committee (TAC) to review and provide input to pre-construction surveys, post-operation monitoring, and implementation of mitigation measures. Additionally, EFSEC has identified measures to avoid sensitive features and habitats, develop wildlife and habitat specific management plans (e.g., Indirect Habitat Loss Management Plan), and conduct additional pre-construction and post-operation surveys to inform the final design and monitor changes in species abundance and richness through operation. Due to the interconnected relationship between vegetation and wildlife and habitat, recommended mitigation measures for each of these resources has the potential to address impacts from the Proposed Action to the other.

ES-4.3.3 Energy and Natural Resources, Public Services and Utilities

There are mitigation measures for retrieving and recycling as much of the natural resources used in construction and operation of the Project as possible. For example, throughout the Project's lifecycle, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Similarly, to reduce the amount of water necessary to operate the Project, the Applicant would capture and recycle wash water during the operations stage. These mitigation measures would reduce the amount of waste that would be sent to sewage and solid waste treatment facilities, thereby serving as useful mitigation for both resource areas.

ES-4.4 Non-Significant Impacts but Are Issues of Concern That Warrant Discussion

ES-4.4.1 Curtailment and Exclusion of Turbines to Address Impacts on Ferruginous Hawk

The EIS identifies potential impacts on ferruginous hawk habitat and populations through loss of habitat and potential mortality from collision with wind turbines. As these impacts could result in a high-magnitude impact on ferruginous hawks, EFSEC proposes additional mitigation measures specific to avoiding and reducing Project-related impacts on ferruginous hawks, including exclusion of turbines within core ferruginous hawk habitat and curtailing turbine operation while ferruginous hawks are present. Specifically, mitigation measures for ferruginous hawks would require avoiding siting Project components within 2 miles of ferruginous hawk nests documented in PHS data and reported by the Applicant in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) to preserve foraging habitat. The Applicant would be required to demonstrate that the nest site and foraging habitat is no longer available to the species prior to siting turbines within 2 miles of a known ferruginous hawk nest. Where siting features within 2 miles of a known, but no longer viable, ferruginous hawk nest is accepted, the mitigation measure would require using options, such as turbine curtailment to reduce potential strikes with ferruginous hawks, in core habitat while nests are active (i.e., during the breeding season). The extent to which ferruginous hawk mitigation may be implemented will be informed by the final Project layout and field data on ferruginous hawk presence and habitat use of the Lease Boundary collected through pre-construction monitoring programs.

ES-4.4.2 Loss of Priority Habitat

The EIS identifies potential impacts on Priority Habitat. These impacts are concentrated within the areas of the Micrositing Corridor and East Solar Field. Impacts to Priority Habitat include:

Permanent disturbance[5] of 72.5 acres of Eastside (interior) grassland and temporary disturbance[6] of 16.2 acres. Eastside (interior) grassland is Class III Priority Habitat.

Permanent disturbance of 1.1 acres of dwarf shrub-steppe and temporary disturbance of 8.9 acres. Dwarf shrub-steppe is Class II Priority Habitat.

Permanent disturbance of 1.4 acres of sagebrush shrub-steppe and temporary disturbance of 31.4 acres. Sagebrush shrub-steppe is Class II Priority Habitat.

Permanent disturbance of 717.2 acres of rabbitbrush shrubland and temporary disturbance of 152.3 acres. While rabbitbrush shrubland is not explicitly stated as a Class II habitat, the Applicant has agreed to consider this a Class II habitat based on discussions with the Washington Department of Fish and Wildlife (WDFW).

Priority Habitats are areas of conservation concern and have experienced continuous loss and degradation from anthropogenic development in Washington. As temporary and permanent impacts would result from the Project, EFSEC proposes additional mitigation measures specific to offsetting impacts on Priority Habitat. Specifically, an as-built report and offset calculation would be required by the Applicant and would indicate the final temporary and permanent disturbance of Priority Habitat listed above and calculation of offsets required based on final temporary, permanent, and modified habitat impacts. EFSEC would determine the number of years that vegetation monitoring of temporary disturbance and modified habitat would be conducted and the success criteria

[5] Permanent disturbance is defined as habitat loss that would persist throughout the life of the Project and would not be restored when construction is complete (WDFW 2009).
[6] Temporary disturbance is defined as habitat loss that would end when construction is complete and the area would be restored to pre-construction conditions (WDFW 2009).

for revegetation. The success criteria would include measurable parameters that the Applicant would apply to determine whether successful revegetation has occurred. In addition, a Detailed Site Restoration Plan has been recommended to provide the Revegetation Plan to be undertaken during decommissioning. The Detailed Site Restoration Plan would include provisions for adaptive management and would be updated based on lessons learned from implementing the Applicant's Revegetation Plan. These documents and associated monitoring reports provide a means to determine the effectiveness of revegetation and offset treatments. Chapter 4.5 Vegetation, Table 4.5-11 presents a summary of the habitat offset ratios provided by the Applicant in Appendix L (Habitat Mitigation Plan) of the Final ASC.

ES-4.5 Other Agencies or Interested Parties Cooperation to Implement Mitigation

Recommended mitigation measures TR-5 and TR-7 would involve the cooperation of other agencies to implement the required actions. Similarly, recommended mitigation measure CR-2 would involve discussions with affected Tribes (e.g., Yakama Nation). This could provide more detailed information about the impacts and potential mitigation. EFSEC will work with the identified agencies, affected Tribes, or interested parties to facilitate cooperation in implementing identified mitigation measures. As EFSEC cannot require actions from other agencies or tribes within its mitigation, these mitigation measures should not be seen as fully effective. The mitigation measures referenced above are defined in Sections 4.14 and 4.9 as follows:

TR[7]-5: The analysis of impacts from decommissioning is based on existing laws and regulations at the time when the Final ASC was submitted to EFSEC. The Applicant would consult with WSDOT and Benton County on the development of a Decommissioning-Stage Traffic and Safety Management Plan, prior to decommissioning. The Traffic and Safety Management Plan must include a safety analysis of the WSDOT-controlled intersections (in conformance with the WSDOT Safety Analysis Guide) and recommend mitigation or countermeasures where appropriate. The analysis would review impacts from decommissioning traffic and be submitted to WSDOT for review and comment prior to decommissioning. Since this measure would require the participation of other agencies before it could be implemented, it cannot be considered fully effective mitigation for the purpose of this analysis. EFSEC would work with the identified agencies to facilitate.

TR-7: Coordinate with WSDOT, Benton County, and EFSEC prior to construction and prior to decommissioning on potential mitigation for intersections with safety concerns. Mitigation may include the installation of warning signs, rumble strips, or other measures to alert motorists of intersections.

CR[8]-2: Archaeological and Architectural Resources Mitigation: Table 4.9-9 of Section 4.9 sets out proposed mitigation measures for historic and cultural resources potentially impacted by the Project. Any mitigation strategies should be detailed in an agreement document between EFSEC, Washington State Department of Archaeology and Historic Preservation (DAHP), the Tribes, and the Project proponent.

Mitigation measures are intended to minimize impacts on historic and cultural resources with elevated sensitivity (precontact archaeological resources, National Register of Historic Places (NRHP)-eligible historic-period archaeological resources, TCPs, and unidentified historic and cultural resources), primarily through avoidance. If avoidance is not possible, the mitigation clarifies which resources would require a

[7] TR-: Identifier of numbered mitigation item for Transportation

[8] CR-: Identifier of numbered mitigation item for Cultural Resources

DAHP permit prior to disturbance. Mitigation measures also identify instances where engagement with DAHP, Tribes, and/or landowners would be required.

ES-4.5.1 Adjudication

EFSEC's siting process requires hearings on the proposed project to allow the Applicant and other qualified interested parties to present expert witness testimony to support their concerns regarding the proposed project. EFSEC as required by law must conduct these hearings as formal adjudicative proceedings. As required by RCW 80.50.090(4), the Washington Administrative Procedure Act (RCW 34.05), and WAC Chapter 463-30, EFSEC issued the order commencing adjudication for the proposed Project on December 15, 2022. Adjudication hearings for the Project were held between August 14, 2023, and August 25, 2023. Information on the adjudication process for the Project is available at the following link: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-adjudication.

ES-4.5.2 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or mitigate impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. During the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would occur.

Prior to the finalization of the EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns. Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). WAC 463-60-116 requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." The EIS includes an evaluation of the effectiveness of the post-adjudication Applicant commitments in minimizing impacts on the natural and built environment.

ES-4.6 Project Areas Not Covered

The Applicant's Final ASC included elements that were not previously submitted as part of the Project nor were they evaluated as part of the Draft EIS. The new elements presented in the Final ASC have not been evaluated as part of this final version of the EIS. The aforementioned elements include:

- Additional unsurveyed micrositing corridors outside or inside the Lease Boundary needed to align with the BPA's proposed substation.
- The addition of a laydown area located outside of the Lease Boundary for the purpose of providing an interim storage location for turbines. The need for the additional laydown area would be determined by the Applicant and their vendors as the Project's procurement progresses.
- If authorized, the associated disturbance and unsurveyed micrositing corridors inside and outside of the Lease Boundary needed to accommodate Aircraft Detection Lighting Systems (ADLS) as required by State of Washington House Bill (HB) 1173, passed in 2023. Authorization of the ADLS would be at the discretion of the Federal Aviation Administration.

- Use of haul routes not evaluated in the Traffic Impact Analysis (Horse Heaven Wind Farm, LLC 2023).
- While the construction of transmission lines within micrositing corridors is evaluated in this EIS, undergrounding of the line was not included as part of the analysis.
- Potential sourcing of water for the Project from the Gould well located on Department of Natural Resource lands.
- Any further reductions in turbines presented by the Applicant following the Post-Adjudication Applicant Commitments.

For any of these new and unevaluated elements to be included as part of the Site Certification Agreement (SCA), supplemental analysis would be required prior to EFSEC authorization.

ES-5 Public and Agency Involvement

ES-5.1 SEPA Scoping

EFSEC initiated a public involvement program, which included SEPA scoping, inter-agency coordination, and multiple public comment periods. Scoping is the first step in the SEPA environmental review process, to identify issues and concerns related to a proposed project, and thus to assist with identifying potential impacts and alternatives to analyze in the EIS. The scoping comment period for this EIS was May 11, 2021 to June 6, 2021. Members of the public, government agencies, tribes, and other interested stakeholders were invited to attend two scoping meetings/hearings and to submit comments verbally or written on comment forms during scoping meetings or by email or surface mail. EFSEC received approximately 370 comments from private citizens, environmental organizations, public agencies, and tribal representatives during the scoping period. EFSEC reviewed and considered these comments when determining the scope of the EIS. The Scoping Memo can be found on EFSEC's website: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa.

ES-5.2 Participating Agencies

EFSEC invited agency representatives with regulatory authority or special expertise with respect to environmental issues to assist in development of the EIS. Representatives from the following agencies cooperated in developing the EIS:

- Washington Department of Fish and Wildlife (WDFW)
- Washington Department of Ecology (Ecology)
- Washington State Department of Transportation (WSDOT)
- Washington State Department of Archaeology and Historic Preservation (DAHP)
- Washington Utilities and Transportation Commission (UTC)
- Washington Department of Natural Resources (DNR)
- Washington State Department of Agriculture (WSDA)

ES-5.3 Public Review of the Draft EIS

The Draft EIS was issued on December 19, 2022. The comment period began on December 19, 2022 and concluded on February 1, 2023. Approximately 2,497 comment submissions were received during the public comment period. A public hearing on the Draft EIS was held virtually on February 1, 2023. The event was attended by members of the public, representatives of governmental agencies and tribes, nongovernmental organizations, private individuals, and representatives of Horse Heaven Wind Farm, LLC (the Applicant). In total, approximately 74 people provided verbal comments at the public meeting. All verbal comments were transcribed by a court reporter and can be found in the meeting transcripts, along with copies of all individual website comments, comment emails, letters, and cards (referred to as "comment submittals"). The meeting transcripts and comments are available for review on the publicly accessible EFSEC website: (https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa).

ES-6 Next Steps

EFSEC will use this EIS along with other sources of information to inform its decision on whether to recommend approval or denial of the proposed Project to the governor. The EIS will inform the governor's ultimate decision. If EFSEC determines the Project should be recommended for approval, it will develop a recommendation report and a draft SCA to be signed by the governor. The SCA would contain all requirements and any other conditions the Applicant must meet for construction and operation throughout the Project's life, and for eventual decommissioning of the Facility. If EFSEC determines the Project should not be recommended to the governor for approval, the recommendation will explain EFSEC's decision.

The governor has 60 days to consider EFSEC's recommendation and can take one of the following actions:

1) Approve the application and execute the draft SCA.

2) Deny the application and reject the application.

3) Direct EFSEC to reconsider certain aspects of the Project and draft SCA.

If an ASC is denied, the Project cannot be constructed and operated. The date of the governor's ultimate decision is not currently known. If the Governor approves the ASC and executes the draft SCA, RCW 80.50 directs EFSEC to regulate the construction and operations of the Project through the SCA. The SCA lists the conditions the Applicant must meet during construction, while operating the facility, and through site restoration following a project's termination. For the entirety of a Project's lifespan, EFSEC is responsible for determining the Project's compliance with state laws and the terms set in the SCA.

The SCA for the Project would include, by reference, a comprehensive list of Applicant-committed measures and additional mitigation required by EFSEC. These additional measures may be identified through the SEPA process or through EFSEC's adjudicative process. EFSEC ensures compliance through an environmental monitoring program that the agency administers for the duration of the Project's lifespan. EFSEC has the regulatory authority to enforce compliance with state laws and the conditions in the SCA through fines and other actions.

ES-7 Further Information about the Project

The following presents hyperlinks to locations on EFSEC's website where documentation about the Project has been cataloged by the agency:

The web page includes the following hyperlinks that catalog EFSEC's review of the Proposed Action: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project.

Hyperlink to the Horse Heaven ASC: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-application.

Hyperlink to public informational meeting and land use consistency hearing: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-land-use.

Hyperlink to comments received: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa.

Hyperlink to EFSEC administrative orders: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-adjudication.

Hyperlink to Agency Correspondence: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa.

Attachment ES-3-1

EFSEC Recommended Mitigation Measures

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EFSEC has identified the following additional and modified mitigation measures for the Project to avoid and/or minimize potential impacts:

Earth Resources

Geo-1[9]**:** Minimize soil disturbance activities with the potential for soil compaction when soils are saturated, such as following a major precipitation event (e.g., five-day antecedent rainfall of greater than 1.1 inches in the dormant season or greater than 2.1 inches in the growing season). Direct construction away from areas with saturated soils and where drainage may concentrate until soils are no longer saturated, and limit vehicular traffic to established access roads. Where possible, leave existing vegetation root structure intact to enhance soil stability and infiltration capacity. Where necessary, utilize best management practice (BMPs) such as low-ground-pressure and/or long-reach equipment, temporary matting and work pads, and localized engineered drainage improvements (e.g., interceptor drains, detention basins). Where soil compaction is observed to have occurred, decompact subsoils to a minimum depth of 18 inches or as identified in site reclamation plans and lease agreements.

Rationale: This mitigation measure limits erosion and disturbance of natural soil profiles.

EFSEC-recommended mitigation measures for earth resources also includes: **A-1**[10], **W-2**[11]**, Veg-7**[12]**, LSU-4**[13]**, and LSU-5.**

Air Quality

A-1: Limit traffic speeds on unpaved areas to less than 15 mph, rather than the Applicant-proposed 25-mph limit. Access-road-related fugitive dust from construction vehicle traffic is the single largest source of PM_{10} and $PM_{2.5}$ emissions from Project construction. Road-related fugitive dust emissions increases with increasing vehicle speed. Consequently, one of the best management practices for mitigation of road-related fugitive dust emissions is to limit vehicle speed. The Applicant has proposed to limit vehicle speed to 25 mph. A lower vehicle speed limit of 15 mph is feasible and would further reduce fugitive PM_{10} and $PM_{2.5}$ emissions.

Rationale: Road-related fugitive dust emissions increase with increasing vehicle speed. Consequently, one of the BMPs for mitigation of road-related fugitive dust emissions is to limit vehicle speed. The Applicant has proposed to limit vehicle speed to 25 mph. A lower vehicle speed limit of 15 mph is feasible and would further reduce fugitive PM_{10} and $PM_{2.5}$ emissions.

A-2: Applicant shall submit a Proof of Contact: Soil Destabilization Notification to both EFSEC and BCAA at least 90 days prior to commencement of construction.

[9] Geo-: Identifier of numbered mitigation item for Geology

[10] A-: Identifier of numbered mitigation item for Air

[11] W-: Identifier of numbered mitigation item for Water

[12] Veg-: Identifier of numbered mitigation item for Vegetation

[13] LSU-: Identifier of numbered mitigation item for Land and Shoreline Use

Rationale: Fugitive dust emissions are a potential concern. This notification will facilitate EFSEC and BCAA awareness of commencement construction so that compliance with implementation of all Applicant-proposed BMPs can be field validated.

Water Resources

W-1: Least Risk Fish Windows: Project construction and decommissioning within ephemeral and intermittent streams would observe the least risk windows for spawning and incubating salmonoids, which are, conservatively, August 1 to September 15 for the Yakima and Columbia Rivers and their tributaries in Benton County (WDFW 2018).

Rationale: This mitigation measure addresses potential impacts on surface water and fish habitat and would minimize risk to aquatic species.

W-2: Minimize Work in Heavy Rain: Project construction and decommissioning would be minimized during rainy periods and heavy rain—in particular, work near ephemeral or intermittent streams.

Rationale: This mitigation measure addresses potential impacts of surface water and runoff and would minimize the risk of sediment release to surface water and wetlands.

W-3: Check Dams: As indicated in Ecology (2019) BMP C207E, check dams cannot be placed or used in streams unless approved by WDFW. Check dams used for work within ephemeral or intermittent streams would be approved by EFSEC in coordination with WDFW and Ecology prior to use. Stream crossing designs and associated mitigation plans would be provided and approved by EFSEC in coordination with WDFW and Ecology.

Rationale: This mitigation measure addresses the use of check dams on site, which would require approval by WDFW and Ecology prior to use.

W-4: Culvert Installation BMPs: Based on the Final ASC, one culvert is proposed along one intermittent stream. Installation of the culvert would follow U.S. Department of Agriculture BMPs:

- Be oriented and aligned with the natural stream channel.
- Be constructed at or near natural elevation of the streambed to avoid or minimize potential flooding upstream of the crossing and erosion below the outlet.
- Use suitable measures to avoid or minimize water from seeping around the culvert.
- Use suitable measures to avoid or minimize culvert plugging from transported debris or bedload.
- Be regularly inspected and cleaned as necessary for the life of the Project (USDA 2012).
- Cover culvert with sufficient fill to avoid or minimize damage by traffic.
- Install culverts long enough to extend beyond the toe of the fill slopes to minimize erosion.

Rationale: This mitigation measure addresses permanent impacts on ephemeral streams. It provides specifications on culvert installation to enable assessment of the potential impacts.

W-5: Employee Training: An employee training plan would be included as part of the SPCC Plan. For the duration of the Project, employees and workers on site would receive appropriate training according to the employee training plan to ensure that any spills are reported and responded to in an appropriate manner (Ecology 1999). This would include training on the use of spill response equipment and

orientations identifying the location of hazardous materials, proper storage of hazardous materials, and location of spill response equipment to ensure that workers are competent in spill response.

Rationale: This mitigation measure addresses potential impacts on water quality including sedimentation and accidental spill. Employee training reduces the risk of human error and increases confidence in the effectiveness of spill response in the event of accidents such as an accidental spill.

W-6: Wetland SWPPP: A Stormwater Pollution Prevention Plan (SWPPP) would be designed specifically for work within the Micrositing Corridor adjacent to the wetland (Figure 3.4-1, Section 3.4). The SWPPP would include BMPs from the Stormwater Management Manual for Eastern Washington (Ecology 2019). The plan would include, but not be limited to, structural measures such as installation of silt fences and sediment ponds, and non-structural measures, including routine inspection and maintenance and enforcement of BMPs, to minimize surface water runoff generated from the construction activities to the wetland.

Rationale: This mitigation measure addresses potential impacts on the wetland situated near the Micrositing Corridor. The wetland is located downgradient from the construction area, so additional mitigation measures are proposed to avoid impacts.

W-7: Clear-Span 100-Year Floodplain: Clear-span the transmission line to avoid temporary disturbance to the 100-year flood plain. Site transmission line poles outside the 100-year floodplain.

Rationale: This mitigation measure addresses physical disturbance of the 100-year floodplain, a CARA. Clear-span would minimize physical disturbance.

W-8: Spill Response Equipment: Spill response equipment would be stored in every vehicle accessing the site during construction, operation, and decommissioning. In addition, an oil pan would be placed below heavy equipment when stored or not in use on site.

Rationale: This mitigation measure addresses spill response impacts by specifying locations for spill response equipment.

W-9: Minimize Water Use: During construction, operation, and decommissioning, water use would be minimized where possible. During drought or water shortage, schedule adjustment would be considered to minimize water needs on the site, where possible, or additional alternate off-site water supplies would be identified.

Rationale: This mitigation measure addresses impacts on public water supply and is proposed to minimize water use on site throughout the life of the Project.

W-10: Panel Washing: During drought or water shortage, panel washing would be postponed or alternate off-site water sources could be identified to minimize impacts on public water supply. Panel wash water would be recycled and re-used where possible during operation.

Rationale: This mitigation measure addresses impacts on public water supply and is proposed to minimize water use on site from panel washing, if required.

W-11: Concrete Batch Plant to Avoid Streams: Laydown areas or locations where temporary concrete batch plants will be sited should be a minimum of 100 ft from mapped streams or waterbodies.

Rationale: Siting temporary concrete batch plants outside of stream and riparian areas reduces the potential impacts off accidents and malfunctions from release of concrete wash water on water quality.

Vegetation

Veg-1: Tree Avoidance: Construction would avoid removing or disturbing trees within the Project Lease Boundary. Disturbance to trees includes any disturbance within the drip-line of the tree (i.e., the area from the edge of the outermost branches), including topping, which preserves an intact root system. Disturbance within the drip-line of the tree should be avoided as this can lead to tree mortality. The avoidance area within the drip-line of trees in work areas should be delineated using snow fencing or similar measure to improve the visibility of avoidance zones. Trees cannot be removed without pre-approval. Where tree disturbance cannot be avoided by the Project (e.g., near transmission lines), the number and location of the trees would be provided to EFSEC, along with a statement justifying why avoidance cannot be achieved, and a mitigation plan. The mitigation plan would include replanting trees within the Lease Boundary to maintain the diversity of habitat structures provided by trees and would require approval by EFSEC prior to proceeding.

Rationale: Trees are a rare feature on the landscape that provide habitat value to wildlife species and structural diversity. Replanting trees may be challenging in an arid environment, and there would be a time lag before trees reach the same size and age. Veg-1 seeks to avoid physical disturbance to existing trees.

Veg-2: Pre-Disturbance Surveys for Special Status Plant Species: Special status plant species are known to occur near the Lease Boundary. Areas with increased potential for special status plant species include areas of Priority Habitat and areas identified by the Applicant as potential habitat for woven spore lichen. Where possible, disturbance to Priority Habitat and high potential areas will be avoided, but if avoidance is not possible surveys for special status plant surveys will be conducted. Surveys would be conducted by a qualified professional. Surveys would be conducted prior to both construction and decommissioning activities. All findings would be documented and provided to EFSEC in an annual report. Where special status plant species are encountered within proposed disturbance areas, the Applicant will modify the Project design to avoid the species or, where modification is not possible, develop additional mitigation measures based on discussions with EFSEC and WDFW, such as relocation where a species is tolerant of relocation; minimization; or other form of mitigation. Mitigation plans for encountered special status plant species will be provided to EFSEC for consideration and to provide additional direction. Any modifications to Project design would also be provided to EFSEC as part of the report. An environmental monitor would be required to track any mitigation associated with the finding of special status plant species.

Rationale: This mitigation measure minimizes potential impacts on special status plant species by providing an opportunity to modify the design to avoid any identified plants, prior to actual disturbance activities during construction and decommissioning. It also provides the opportunity to apply additional mitigation should special status plant species be encountered within disturbance areas.

Veg-3: Special Status Plant Species Education: The environmental orientation provided to workers on site would include information on special status plant species. This would include diagnostic characteristics, suitable habitat descriptions, and photos of special status plant species with potential to occur within the Lease Boundary. A protocol would be established for any chance find by workers, who would notify the environmental monitor on site prior to proceeding with work. The environmental monitoring would report

any findings of special status plant species to EFSEC in a report, and EFSEC would consider these reports and provide additional direction on actions to address any impacts. Workers' completion of the environmental orientation would be tracked by the Applicant and provided in an annual report to EFSEC.

Rationale: This mitigation measure minimizes impacts on special status plant species by educating workers in identification and suitable habitat.

Veg-4: As-Built Report, Offset Calculation, and Monitoring of Revegetation: Within 60 days of completing construction, the Applicant would provide an as-built report that documents the amount of temporary and permanent disturbance associated with the Project. This would include associated maps and georeferenced spatial files. The as-built report would be factored into the final calculation of habitat offset based on the Applicant-provided ratios. The acreages of modified habitat planted for the Project under the solar arrays would also be included in this report. EFSEC would determine the number of years that vegetation monitoring of temporary disturbance and modified habitat would be conducted and the success criteria for revegetation. The success criteria would include measurable parameters that the Applicant would measure to determine whether successful revegetation has occurred. The Applicant would submit annual reports for each year of vegetation monitoring following construction to document the success of revegetation. At the end of the vegetation monitoring period, as determined by EFSEC, areas of modified habitat and revegetated temporary disturbance that have met the success criteria would be eligible for offset by the Applicant at the respective ratios. Any areas of modified habitat or temporary disturbance that do not meet the success criteria after completion of revegetation monitoring would be considered permanent disturbance, and this would be added to the offset requirement. This mitigation measure addresses habitat offset, by providing a final calculation of offset requirements based on actual disturbance.

Rationale: This mitigation measure addresses habitat offset by providing a final calculation of offset requirements based on actual disturbance. In addition, it addresses the uncertainty associated with the success of revegetation and, in particular, of restoring shrub-steppe ecosystems.

Veg-5: Operation and Decommissioning Dust Control Plan: A dust control plan would be prepared for Project operation and decommissioning, similar to the dust control plan presented by the Applicant. The plan would minimize impacts on vegetation from dust during the operations and decommissioning stages of the Project.

Rationale: This mitigation measure minimizes indirect impacts from dust during operation and decommissioning.

Veg-6: Decommissioning Legislated Requirements: Mitigation measures that would be applied during decommissioning would follow the applicable legislated requirements at the time of decommissioning.

Rationale: This mitigation measure enables adjustment of requirements based on changes in legislation once decommissioning occurs, based on the requirements at that time.

Veg-7: Detailed Site Restoration Plan: The Detailed Site Restoration Plan is a required, regulatory document. It would be prepared and submitted for approval by EFSEC for final revegetation prior to Project decommissioning for the temporary and permanent disturbance areas. It would be adapted to include modified habitat.

Rationale: The Detailed Site Restoration Plan would be a living document. It would include the methods, success criteria, monitoring, and reporting for revegetation at the end of the Project life. It would also include provisions for adaptive management and would be prepared based on any lessons learned from implementing the revegetation planned for the temporary disturbance from Project construction as described in Appendix N of the 2022 ASC (Appendix N, Horse Heave Wind Farm, LLC 2022).

Veg-8: Decommissioning Noxious Weed Management Plan: A Noxious Weed Management Plan (or extension of the current plan) to include prevention and control during decommissioning of the Project would be prepared. This Plan would include monitoring of the area for three years following decommissioning of the Project.

Rationale: This mitigation measure addresses noxious weeds during decommissioning. It is designed to minimize the introduction and spread of noxious weeds during decommissioning.

Veg-9: Maintenance of Solar Array Fence: During Project operation, the solar array fence would be maintained, including removal of vegetation material that may become entwined in the fence.

Rationale: Vegetation material entwined within the solar array fence presents a fuel source for fire. Maintenance and removal would minimize this risk.

EFSEC-recommended mitigation for vegetation also includes: **Hab-2**[14], **Hab-3**, **Hab-4**, **Hab-6**, **Hab-7**, and **Hab-8**.

Wildlife and Habitat

Wildlife

Wild-1[15]**: Post-construction bird and bat fatality monitoring program**

Prior to initiation of operation, the Applicant would develop, in coordination with the Technical Advisory Committee (TAC) and approval by EFSEC, a post-construction bird and bat fatality monitoring program. Monitoring would be conducted for a minimum of three years. While the three years of monitoring need not be consecutive, all post-construction monitoring would be conducted within the initial five years of operation to document variation in annual fatality rates. The program would describe survey methods, timing, and effort as described in the Applicant's Bird and Bat Conservation Strategy (Appendix M of the Final ASC). Surveys would include carcass surveys to document the longevity of carcass persistence and detectability of carcasses. Surveys would be conducted year-round to account for variation in bird and bat abundance and diversity. Additional surveys (e.g., survey frequency) would be conducted during sensitive periods for birds and bats (e.g., migration periods). Surveyed area would include turbines, solar arrays, and transmission lines at a minimum.

Bird and bat fatality adaptive management strategy development

Prior to initiation of operation, the Applicant would develop, in coordination with the TAC and approval by EFSEC, an adaptive management strategy. The adaptive management strategy would include additional

[14] Hab-: Identifier of numbered mitigation item for Habitat

[15] Wild-: Identifier of numbered mitigation item for Wildlife

mitigation measures to be applied during sensitive periods (e.g. migration) or if mortality thresholds are exceeded.

Migratory bat species are at risk of population level impacts due to wind power facilities and these species are most at risk of collisions with turbines during spring and fall migration. As such, adaptive management strategies will be applied during these sensitive periods, which are generally April to June (spring migration) and August to October (fall migration) (Hayes and Wiles 2013). Acoustic surveys during operation may be used to define a project-specific migratory period. Acoustic detectors may be deployed across the Lease Boundary prior to spring and fall migration to detect increased bat activity suggesting the onset of bat migration. These data would be used to adjust the generalized bat sensitive periods listed above. Similarly, acoustic data would be used to document the end of bat migration and when adaptive management strategies may no longer be required. Bat data would be downloaded and analyzed on a weekly basis to document the start and end of migration.

Adaptive management mitigation strategies that would be considered include altering the operation of the turbines by increasing the cut-in speed to above 18 feet (5.5 meters) per second (Alberta Government 2013) and curtailing turbines during known bird and bat migration period. As noted in in Section 4.6.2.2, projected impacts of wind power projects estimate that wind power could result in mortality levels of 3 to 46 percent of the hoary bat population by 2050. Friedenberg and Frick (2021) conclude that a 5 m/s curtailment could avoid hoary bat extinction in several of the modeled scenarios. Acoustic monitors and smart curtailment may also be included in adaptive management to refine data on bat presence near turbines and when curtailment mitigation should be implemented. Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring.

Bird and bat fatality adaptive management review

The Applicant, the TAC, EFSEC, and WDFW would review the results of the bird and bat post-construction fatality monitoring program after each monitoring period to determine whether the mitigation measures outlined in the adaptive management strategy should be revised or adjusted. The data would also be used to determine whether monitoring efforts are sufficient to verify predicted impacts on birds and bats. EFSEC may require the Applicant to conduct more intensive surveys (e.g., additional spatial extent or frequency) or extend the duration of post-construction monitoring beyond the minimum three years. The Adaptive management mitigation strategies should be periodically reviewed (minimum of every five years) with the TAC during operation to consider inclusion of new science and technologies that may more efficiently reduce bird and bat fatalities.

Rationale: This mitigation allows for continued monitoring and adaptive management of potential Project-related wildlife mortalities.

Wild-2: All trash containers would be wildlife resistant.

Rationale: This mitigation measure reduces potential human-wildlife conflicts thereby reducing potential Project-related wildlife mortalities.

Wild-3: The Applicant would provide EFSEC a summary of the consultation undertaken with the USFWS regarding eagle mortality.

Rationale: This mitigation measure allows for continued monitoring and adaptive management of potential Project-related impacts on eagles.

Wild-4: The Applicant would avoid the use of pesticides, including rodenticides, during Project construction and operation. If pesticides are required, the Applicant would, prior to application of the pesticides, develop a management plan for submission to and approval by EFSEC that describes how the Applicant would avoid and/or otherwise minimize potential impacts on wildlife, including all potentially impacted special status species.

Rationale: This mitigation measure reduces potential impacts on habitat and wildlife mortality while allowing for adaptive management of potential Project related impacts.

Wild-5: The Applicant would limit construction disturbance by identifying sensitive areas on mapping and flagging in the field exclusion zones around any sensitive areas, including wildlife features, such as wildlife colonies, active nests, dens, and wetlands. Encroachment into exclusion zones required during construction would be reviewed by the Applicant's biologist to determine the impacts on the feature and recommend additional measures to manage impacts to the resource. The Applicant would provide information on where encroachment would be required, the rationale for encroachment, and additional mitigation measures for EFSEC to review prior to implementation. The Applicant would conduct ongoing environmental monitoring during construction to ensure that flagged exclusion zones are avoided.

Rationale: The mitigation measure reduces potential loss of habitat and wildlife mortality.

Wild-6: The Applicant would maintain a database of road mortalities throughout construction and operation as part of the operational procedures. The Applicant would review road-based mortalities annually and propose additional mitigation for areas, under the control of the Applicant, with frequent mortalities or wildlife crossing observations. Additional mitigation measures may include speed control, signage, temporary road closures (e.g., during migration periods), or wildlife passageways. The mitigation measure allows for continued monitoring and adaptive management of potential Project related wildlife mortalities and would be reviewed and approved by EFSEC prior to implementation.

Rationale: This mitigation measure allows for continued monitoring and adaptive management of potential Project-related wildlife mortalities.

Wild-7: The Applicant would schedule construction activities to occur during daylight hours, when feasible, to reduce disturbance of nocturnal species and the need for nighttime lighting.

Rationale: This mitigation measure reduces disturbance to wildlife (i.e., indirect loss).

Wild-8: Wind turbine buffer zones would be established around all known raptor nests and be a minimum of 0.25 miles. The Applicant would prepare a Raptor Nest Monitoring and Management Plan for review by EFSEC and the Pre-operational Technical Advisory Group (PTAG) if buffer zones cannot be maintained.

Rationale: This mitigation measure reduces potential impacts on habitat and raptor mortality while allowing allow for adaptive management of potential Project-related impacts.

Wild-9: Vegetation clearing and grubbing would avoid local bird breeding periods, when feasible, to reduce potential destruction or disturbance of nesting birds. If avoidance of this period is not feasible, additional

mitigation measures, such as pre-construction surveys for and buffering of active bird nests, would be undertaken.

Rationale: This mitigation measure avoids or reduces potential bird mortality.

Habitat

Hab-1: The Applicant would locate Project components, including roads and powerlines, outside of movement corridors modeled in Washington Wildlife Habitat Connectivity Working Group (2013) as medium to very high linkage, to the extent feasible. The Applicant would provide rationale to EFSEC for siting components within movement corridors, and a Corridor Mitigation Plan would be required that describes:

- Extent of direct and indirect habitat impact within the movement corridor
- Proposed measures to be implemented to reduce potential impacts on movement corridors (e.g., habitat enhancements to promote continued use of corridors)
- Proposed features (e.g., open-bottom culverts) to accommodate wildlife movement for linear Project components (e.g., roads, powerlines)
- Proposed restoration in movement corridors following Project decommissioning
- Performance standards to assess the effectiveness of mitigation measures and restoration
- Methods to monitor and measure performance standards

The Corridor Mitigation Plan would be developed in consultation with the PTAG and reviewed and approved by EFSEC prior to implementation. Results of corridor monitoring would be reviewed annually with the TAC to evaluate the effectiveness and apply additional measures if necessary. Data would be provided to EFSEC with additional mitigation measures for review and approval prior to implementation.

Rationale: This mitigation measure reduces potential Project related barriers to wildlife movement while allowing for continued monitoring and adaptive management of potential Project related barriers.

Hab-2: Transmission line crossings of canyons and draws would be minimized. Where crossings are required, the Applicant would provide EFSEC with rationale for the crossings and propose additional mitigation measures to reduce potential barriers to movement (e.g., retaining vegetation under transmission lines) and wildlife collisions (e.g., installing flight diverters on overhead lines). EFSEC would approve the final transmission line layout, mitigation, and adaptive management strategy.

Rationale: This mitigation reduces potential Project related barriers to wildlife movement while allowing for continued monitoring and adaptive management of potential Project related barriers.

Hab-3: Temporary laydown areas. Temporary laydown areas would be situated out of native shrub-steppe habitat. Where temporary disturbance of shrub-steppe habitat is required, the Applicant would provide EFSEC with rationale and propose additional mitigation measures to reduce habitat loss.

Rationale: This mitigation measure avoids and reduces impacts to habitat while allowing for adaptive management of potential Project related habitat loss.

Hab-4: The Applicant, in consultation with EFSEC, would establish a PTAG and TAC. The PTAG would be established at least one year prior to construction and would be responsible for reviewing and providing technical advice on documents produced by the Applicant related to wildlife and wildlife habitat. The PTAG would also provide advice on adaptive management. The PTAG would be responsible for, at a minimum:

- Reviewing and providing technical advice on Project wildlife and habitat management plans (e.g., ferruginous hawk management plan)
- Reviewing and providing advice to EFSEC on pre-design and pre-construction data collection requirements to address Project mitigation measures and conditions of management plans
- Reviewing and providing advice to EFSEC on the final Project design
- Advising on thresholds to be applied to the Project that would trigger the requirement for additional mitigation measures

The Applicant, in consultation with EFSEC, would establish a TAC prior to Project operation. The PTAG would cease to exist once the Applicant has completed all planned construction and would be replaced by the TAC, which would exist for the life of the Project. The TAC would be responsible for, at a minimum:

- Advising on the monitoring of mitigation effectiveness and reviewing monitoring reports
- Advising on additional or new mitigation measures that would be implemented by the Applicant to address exceedances of thresholds
- Reviewing the results of annual data generated from surveys and incidental observations and providing recommendations for alternative mitigation and adaptive management strategies, as well as advising on aspects of existing mitigation that are no longer needed.

The PTAG and TAC may include representation by WDFW, the Washington Department of Natural Resources, interested tribes, Benton County, and the USFWS. The PTAG and TAC may also include local interest groups, not-for-profit groups, and landowners. The exact composition of the PTAG and TAC would be determined through discussions between the Applicant and EFSEC and would depend on the relevance and/or availability of proposed members.

Rationale: This mitigation measure avoids and reduces impacts on wildlife and habitat, including habitat loss, wildlife disturbance, barriers to movement, and wildlife mortality. Further the mitigation measure will allow for continued monitoring and adaptive management of potential Project-related impacts.

Hab-5: As noted by the Applicant, the Project is expected to result in indirect habitat loss through loss of habitat function and changes in wildlife behavior in response to the Project. Further, as noted by the Applicant, WDFW guidelines require that compensatory habitat mitigation must fully offset the loss of habitat function and value. To address indirect habitat loss associated with the Project, the Applicant would develop an Indirect Habitat Loss Management Plan that addresses potential indirect habitat loss resulting from the Project. The Applicant would work with the PTAG during the development of the Indirect Habitat Loss Management Plan (IHLMP) for review and approval by EFSEC. EFSEC and the PTAG would review

the IHLMP prior to its implementation. The IHLMP would be provided to the PTAG for review 90 days prior to construction.

The objectives of the IHLMP would be to identify a Project-specific ZOI and required mitigation based on the Project-specific ZOI. The Project-specific ZOI would be developed based on Project conditions and may differ from the ZOI presented in the EIS. The IHLMP would include:

- A description of the study's purpose and objectives
- A description of methods to define Project-specific ZOIs (e.g., gradient analysis, nest density)
- A description of data requirements to establish Project-specific ZOIs and field programs that would be implemented (pre-construction and post-operation)
- A description of the duration of studies required to establish Project-specific ZOIs
- A description of criteria to be used to compensate for loss of habitat function and value
- An environmental effectiveness monitoring strategy of compensatory habitat to ensure that the habitat meets success criteria

The IHLMP would also include a series of compensatory site-selection criteria, developed in consultation with the PTAG. The selection criteria would be used to evaluate candidate habitat compensation habitats. Habitats that achieve more of the criteria would be identified as the preferential sites. Selection criteria would include, at a minimum:

- Proximity to the Lease Boundary (e.g., hierarchy of preferences with respect to location— within the Lease Boundary being the highest priority, adjacent to the Lease Boundary being the second highest priority, and off site being the third priority)
- Protection of existing native shrub-steppe or grassland habitats
- Encompassing sensitive or important wildlife habitat (e.g., mapped movement corridors, ferruginous hawk core habitat, HCAs, areas of high prey abundance)
- Proximity to Project infrastructure

Rationale: This mitigation measure avoids and reduces disturbance to wildlife (indirect habitat loss) while allowing for ongoing monitoring, adaptive management, and offsetting of potential Project related impacts.

Hab-6: **Final Design:** The Applicant would work with EFSEC, with advice from the PTAG, on the development of the final Project layout and design including the application of Applicant commitments and recommended mitigation measures.

Rationale: This mitigation measure avoids and reduces potential habitat loss and disturbance to wildlife (indirect habitat loss).

Hab-7: All roadways constructed for the Project during the construction and operation phases would be removed and restored during decommissioning. The Applicant would provide EFSEC with rationale and propose additional mitigation measures if roadways are not decommissioned post-operation.

Rationale: This mitigation measure restores habitat post-operation and reduces habitat loss.

Hab-8: The Applicant would be required to provide compensation habitat loss and alteration (indirect habitat loss) (See Hab-5, Veg-4) through one or more actions of land acquisition, onsite easement and restoration (excluding areas impacted by the project such as temporary laydowns), and/or fee-based mitigation.

The Applicant would prioritize development of conservation easements (Option 1[16] in the Applicant's Draft Wildlife and Habitat Mitigation Plan) and would compensate for the remaining permanent and altered (indirect) impacts by providing money to WDFW, or a third party identified by WDFW, and agreed to by EFSEC, to purchase other lands suitable as in-kind and/or enhancement mitigation. The Applicant would provide EFSEC, for review and approval, with rationale for fee-based mitigation (Options 2 and 3 in the Applicant's Draft Wildlife and Habitat Mitigation Plan) including a description of how much compensatory habitat would be addressed through Option 1 (conservation easement) and rationale for why fee-based mitigation is required.

The fee-based mitigation includes a per acre fee that would be determined by market rates and land sales within the general vicinity of the Lease Boundary for lands containing comparable habitat types and quality present within the Lease Boundary. The per acre fee would be developed by the Applicant in consultation with WDFW and approved by EFSEC. The Total Financial Obligation (TFO) would be determined by multiplying the cost per acre by the total Compensatory Mitigation Acres (CMA) remaining after the application of Option 1 mitigation strategy and would include a one-time 15% premium to cover administration and management costs for the purchased lands. The TFO for compensatory mitigation would be determined and agreed to by EFSEC 90 days before construction. If construction has not begun within 12 months of the approval of the TFO, the TFO identified would expire and be recalculated prior to beginning construction. The TFO would be calculated based on the following:

Average Comparable Land Sale Cost (per acre)(CMA-Option 1 Acres)*1.15 = TFO*

Rationale: This mitigation measure clarifies the process to be followed in selection of offsetting habitat.

EFSEC-recommended mitigation measures for wildlife and habitat also include: **Veg-1**, **Veg-4**, and **Veg-7**.

Recommended Mitigation Measures for Special Status Species

Table ES-6 summarizes the mitigation measures recommended by EFSEC that are specific to special status species. These measures, in combination with those described above, would reduce potential Project-related impacts on these species.

[16] Applicant's Draft Wildlife and Habitat Mitigation Plan identifies three compensation options: Option 1 – Conservation easement within or adjacent to the Lease Boundary; Option 2 – Annual fee or lump sum payment provided to WDFW; Option 3 – payment to local land trusts, conservation organizations, or local tribes to support conservation projects.

Table ES-6: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-1[17]	Striped whipsnake Sagebrush lizard	The Applicant would conduct pre-construction surveys for sensitive reptile species prior to alteration or destruction of suitable habitat such as areas within the Lease Boundary identified as core habitat in GAP mapping, as well as shrubland (e.g., shrub-steppe, rabbitbrush). WDFW would be contacted prior to undertaking these surveys. If these species are identified through pre-construction surveys, the Applicant would prepare a Reptile Management Plan to reduce potential impacts on habitat, mortality, and barriers to movement. The Reptile Management Plan would describe: ▪ How the Applicant would avoid suitable habitat, including where the species were observed ▪ How the Applicant would implement management recommendations in Larsen (1997) ▪ How the Applicant would maintain rodent burrows in suitable reptile habitat (e.g., shrub-steppe) ▪ Additional mitigation measures to reduce potential mortality of these species during the construction and operation stages of the Project The Reptile Management Plan would be reviewed by the PTAG and approved by EFSEC prior to initiation of construction. Survey results and proposed adaptive management would be reviewed by the PTAG and approved by EFSEC prior to implementation (see Hab-4). **Rationale:** This mitigation measure avoids and reduces potential striped whipsnake and sagebrush lizard habitat loss and mortality while allowing for adaptive management throughout Project construction and operation.
Spec-2	American white pelican	The Applicant would maintain a database of American white pelican observations within the Project Lease Boundary. Observational data would be reviewed with the TAC annually, and additional survey strategies would be applied as needed to inform adaptive management. **Rationale:** This mitigation measure allows for adaptive management of potential American white pelican mortality through Project operation.
Spec-3	Eagles	The Applicant would obtain any required federal approvals. The Applicant would continue ongoing coordination with the USFWS (Eagle Coordinator, Columbia Pacific Northwest Region) regarding an eagle take permit for incidental take of bald and golden eagles and would continue to evaluate eagle risk to determine if an eagle take permit is appropriate considering the use of the Project by bald and golden eagles. The Applicant would apply WDFW-recommended buffers for bald eagle and golden eagle nests (Larsen et al. 2004): ▪ Bald eagle – protected zone (400 feet) and conditioned zone (up to 800 feet beyond the protected zone) ▪ Golden eagle – 1.9 miles **Rationale:** This mitigation measure avoids and reduces potential disturbance of eagle nests and eagle mortality.

[17] Spec – Identifier for numbered mitigation measure for Special Status Species (Wildlife)

Table ES-6: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-4	Burrowing owl	The Applicant would conduct burrowing owl surveys within areas of direct loss (permanent, temporary, and modified) and associated ZOIs. The results of these surveys would be provided to the PTAG and EFSEC and used to inform the final Project layout. Active burrows would be retained and satellite burrows with characteristics used by burrowing owls would be avoided where feasible to maintain habitat capacity. WDFW-recommended seasonal buffers (0.5 miles) would be applied around burrowing owl nests to avoid disturbing nesting burrowing owls, if present (Larsen et al. 2004). Seasonal buffers (February 15 to September 25) would be applied during construction and for temporary disturbances, such as periodic maintenance, during operation. If active burrowing owls are identified within the Lease Boundary, the Applicant would develop a species-specific management plan that describes: ▪ The location of active burrows ▪ How active burrows would be avoided through re-alignment or reconfiguration of Project features. ▪ Additional mitigation measures that would be applied where disturbance to active burrows is expected (e.g., construction of artificial burrows) ▪ Additional mitigation measures that would be applied during operation if burrowing owl mortalities are recorded. ▪ How ongoing monitoring of active burrows would be undertaken. The Burrowing Owl Management Plan would be reviewed by the PTAG and approved by EFSEC prior to initiation of construction. Survey results and proposed adaptive management would be reviewed by the PTAG and approved by EFSEC prior to implementation (see Hab-4). The Applicant would monitor access roads for burrowing owl use and mortalities. Mortalities would be reported to the PTAG or TAC (depending on the Project phase) and EFSEC within 5 days of the observation. Incidental observations of burrowing owl use would be provided to the PTAG (construction) or TAC (operation) on an annual basis. **Rationale:** This mitigation measure avoids and reduces potential loss of burrowing owl habitat, disturbance to burrowing owls, and burrowing owl mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-5	Ferruginous hawk	The Applicant would avoid siting Project components within core habitat in ferruginous hawk territories, defined as the habitat within a 2-mile radius surrounding ferruginous hawk nests documented in PHS data and in Horse Heaven Wind Farm, LLC (2022). Siting of features within 2 miles of a known ferruginous hawk nest may be considered if the Applicant is able to demonstrate that the nest site and foraging habitat is no longer available to the species and that compensation habitat, as described below, would provide a net gain in ferruginous hawk habitat. Habitat considered no longer available for ferruginous hawk would include habitat that has been altered by landscape-scale development (cropland conversion, residential development, industrial development) rendering the territory non-viable. This could include habitats that have been altered such that no native or foraging habitat remains and no nesting structures exist. Project infrastructure would not be sited within 2 miles of a

Table ES-6: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
		ferruginous hawk nest without prior approval by EFSEC based on the process described below. The extent of encroachment into 2-mile core habitat may vary depending on the type of infrastructure proposed (e.g., turbine, power line, road). If encroachment is considered by the Applicant, the Applicant would provide the PTAG and EFSEC with: 1. A set of habitat parameters, developed in consultation with the PTAG for approval by EFSEC, to document whether habitat in a core range is consider non-viable. The results of habitat surveys would be reviewed by the PTAG and approved by EFSEC. 2. A description of the current nesting habitat available and a description of documented use of the core habitat by ferruginous hawk available through historic background information or field-based surveys. 3. A description of the type and location of infrastructure proposed within the core habitat. 4. The proximity of infrastructure to any known nest site or suitable foraging habitat. In the event that a Project component is proposed for siting within the 2-mile buffer, the Applicant would, in consultation with the PTAG for approval by EFSEC, develop a Project-specific ferruginous hawk mitigation and management plan: 1. A description of efforts to site Project infrastructure to avoid core habitat, identified as the area within 2 miles of nests documented in PHS data and Horse Heaven Wind Farm, LLC (2022): a. If Project components are sited within 2 miles of a ferruginous hawk nest, the infrastructure would be reviewed by the PTAG and approved by EFSEC. b. Additional mitigation measures would be developed to reduce potential ferruginous hawk strikes with turbines, including curtailing turbine operation within the 2-mile core habitat of any actively occupied nests during the breeding and rearing periods when ferruginous hawks are present in Benton County. c. The plan would explain how and where the Applicant would create offsetting habitat for direct and indirect habitat loss within the 2-mile core habitat of ferruginous hawk nests documented in PHS data and in Horse Heaven Wind, LLC (2022). 2. A description of when construction activities would be undertaken to avoid sensitive timing periods for ferruginous hawk. 3. A description of pre- and post-monitoring programs that would be conducted to establish: a. Habitat use within the Lease Boundary. b. Mapping of ground squirrel colonies and other prey items. c. Identification of potential flyways between nest sites and foraging habitat and monitoring of potential flyways to inform final turbine siting and orientation. d. Ongoing monitoring of nest use and territory success. 4. A description of restoration activities that would be undertaken in disturbed areas to enhance ferruginous hawk habitat during Project decommissioning.

Table ES-6: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
		Results of ferruginous hawk monitoring programs and adaptive management would continue through Project operation and decommissioning with review by the TAC and approval by EFSEC. **Rationale:** The mitigation measure avoids and reduces potential loss of ferruginous hawk habitat, disturbance to ferruginous hawk, and ferruginous hawk mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-6	Great blue heron Sandhill crane Tundra swan	The Applicant would maintain a database of incidental observation of great blue heron, sandhill crane, and tundra swan foraging within the Lease Boundary during operation. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). The Applicant would reduce the use of overhead power lines, where possible. The Applicant would apply buffers recommended in Larsen et al (2004)[(a)] sandhill crane feeding areas (0.5 miles) and roosting areas (0.3 miles), if documented in the Lease Boundary. The mitigation measure avoids and reduces potential disturbance to and mortality of great blue heron, sandhill crane and tundra swan, while allowing for adaptive management throughout Project construction and operation.
Spec-7	Loggerhead shrike Sagebrush sparrow Sage thrasher Vaux's swift	The Applicant would maintain connectivity between natural habitat patches to reduce potential habitat loss and fragmentation. The Applicant would restore areas with shrubs, where feasible, to reduce potential habitat loss. The Applicant would avoid the use of insecticides and herbicides to reduce potential mortality and loss of prey items. The Applicant would retain trees, shrubs, and hedgerows, as feasible, to reduce habitat loss. The Applicant would consult with the PTAG and TAC and EFSEC if suitable habitat for loggerhead shrike, sagebrush sparrow, and sage thrasher cannot be avoided. If suitable habitat cannot be avoided, the Applicant would, in consultation with the PTAG for approval by EFSEC, develop nest set back buffers that are supported by literature to be applied during clearing and grubbing activities. The Applicant would avoid clearing and grubbing during the active nesting period to reduce potential destruction of active nests and disturbance of nesting birds. If clearing and grubbing occurs during the nesting season, the Applicant would conduct pre-clearing surveys for active nests and maintain appropriate setback buffers around active nests. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure avoids and reduces potential habitat loss, habitat fragmentation, and mortality to avoid and reduce impacts on loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift. The measure allows for adaptive management throughout Project construction and operation.

Table ES-6: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-8	Prairie falcon	The Applicant would conduct pre-construction surveys for prairie falcon nests for construction work proposed during the prairie falcon nesting season and maintain a seasonal buffer of 2,640 feet from active nest sites (Larsen et al. 2004) to reduce potential destruction or disturbance of active nests. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure avoids and reduces potential disturbance to prairie falcon, and prairie falcon mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-9	Ring-necked pheasant	The Applicant would consider using native grasses and legumes that support ring-necked pheasant in seed mixes applied during post-construction restoration of temporary disturbances and decommissioning to reduce potential habitat loss (Larsen et al. 2004). Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure reduces potential loss of ring-necked pheasant habitat and allows for adaptive management throughout Project construction and operation.
Spec-10	Black-tailed jackrabbit White-tailed jackrabbit	The Applicant would conduct surveys for jackrabbit in suitable habitat identified through GAP predictive mapping. If jackrabbits are identified, the Applicant would develop and implement a management plan with additional mitigation measures to reduce potential loss of habitat supporting jackrabbits. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure reduces potential loss of black-tailed and white-tailed jackrabbit habitat, indirect habitat loss, habitat fragmentation, and mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-11	Townsend's big-eared bat	The Applicant would restrict bat access to open water if the water could be contaminated. The Applicant would retain old buildings, outbuildings, and trees where feasible. The Applicant would report mortalities of Townsend's big-eared bat to EFSEC and the TAC. Bat mortality data and adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure reduces potential loss of Townsend's big-eared bat habitat and mortality and allows for adaptive management throughout Project construction and operation.

Table ES-6: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-12	Townsend's ground squirrel	The Applicant would conduct surveys for Townsend's ground squirrel colonies within the Lease Boundary in areas of the Project disturbance footprint (including ZOI) to inform final design. The Applicant would avoid habitat loss within Townsend's ground squirrel habitat concentration areas, as well as known colonies, in final design. Additional Townsend's ground squirrel colonies identified through surveys would be shown on Project mapping. If Project components are required in habitat concentration areas (rated as medium or greater) or near known colonies, the Applicant would prepare a species-specific management plan for areas where avoidance is not feasible. This plan would provide rationale for why colonies cannot be avoided and would detail additional mitigation measures to reduce impacts to Townsend's ground squirrel. Additional mitigation measures may include identification of setbacks, colony monitoring, habitat restoration, colony relocation, and reconstruction of habitat features. The plan would also describe monitoring and adaptive management measures to be implemented during Project operation. The plans would be provided and discussed with the PTAG, and approved by EFSEC, if avoidance of identified ground squirrel colonies is not feasible. Observational data and adaptive management strategies would be reviewed with the TAC annually. **Rationale**: This mitigation measure reduces potential loss of Townsend's ground squirrel habitat, disturbance of squirrel colonies, and Townsend's ground squirrel mortality, while allowing for adaptive management through Project construction and operation.
Spec-13	Pronghorn antelope	The Applicant would limit fencing where feasible (e.g., around solar arrays). Final fencing layouts and design, including use of non-barbed-wire security fencing, would be provided to the PTAG and EFSEC with rationale for fencing requirements. The Applicant would design and implement a study of seasonal pronghorn antelope occurrence and use of the Lease Boundary before construction and during operation to document the change, if any, of pronghorn antelope presence, abundance, and habitat use within the Lease Boundary. The PTAG would review and provide input to the study design. The results of the study would be used to develop adaptive management measures to respond to changes in pronghorn antelope habitat use. Survey results and proposed adaptive management would be reviewed by the TAC prior to implementation (see Hab-4) The Applicant would maintain a database of pronghorn antelope observations, including details such as numbers, location, age, and sex, and would make this database available to WDFW, EFSEC, and the Yakama Nation. **Rationale**: This mitigation measure reduces potential disturbance to pronghorn antelope and barriers to pronghorn antelope movement, while allowing for adaptive management throughout Project construction and operation.

Notes:
[(a)] Larsen et al. (2004) recommend buffers around great blue heron colonies, which do not occur within the Lease Boundary, and do not provide recommended buffers for tundra swan.
ASC = Application for Site Certification; EFSEC = Washington Energy Facility Site Evaluation Council; GAP = Gap Analysis Project; PHS = Priority Habitats and Species; PTAG = Pre-operational Technical Advisory Group; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

Summary of Milestones and Timing

Table ES-7 summarizes wildlife and habitat mitigation milestones and the timing of when milestones would be met.

Table ES-7: Summary of Milestones

Timing	Mitigation Measure	Milestone	PTAG/TAC review
Construction			
One year prior to construction	**Hab-4**	Establishment of Pre-operational Technical Advisory Group (PTAG will be replaced by the Technical Advisory Committee upon the onset of operation).	NA
During appropriate season within 1 year prior to construction	**Spec-1, 4, 8, 10, 12**	Pre-construction surveys	PTAG
180 days prior to construction	**Hab-6**	Final design	PTAG
90 days prior to construction	**Hab-1**	Corridor Mitigation Plan, if necessary	PTAG/ TAC
90 days prior to construction	**Hab-2**	Rationale for and mitigation of canyon and draw crossings	NA
90 days prior to construction	**Wild-8**	Raptor Nest Monitoring and Management Plan	PTAG
90 days prior to construction	**Hab-5**	Indirect Habitat Loss Management Plan	PTAG
90 days prior to construction, if needed	**Spec-5**	Ferruginous hawk Mitigation and Management Plan	PTAG/TAC
60 days prior to initiation of surveys (pre-construction).	**Spec-13**	Pronghorn antelope seasonal study	PTAG/TAC
60 days prior to construction, if needed	**Spec 1, 4, 10, 12**	Species specific management plans	PTAG/ TAC
Prior to construction	**Wild-5**	Flagging sensitive features and habitat	NA
Prior to construction	**Wild-9**	Pre-construction bird nest surveys, if necessary	NA
Operation			
60 days post-construction	**Veg-4**	As-built report and offset calculation	NA
Two years after commencement of operation	**Wild-1**	Review of post-construction fatality monitoring results	PTAG/ TAC
Annually during operation	**Wild-6**	Review mortality database and provide mitigation	NA

Table ES-7: Summary of Milestones

Timing	Mitigation Measure	Milestone	PTAG/TAC review
Annually during operation	**Spec-2, 4, 6, 7, 8, 9, 12**	Incidental databases	TAC
Annually during operation	**Spec-11**	Townsend's big-eared bat mortality database	TAC
Decommissioning			
60 days prior to initiation of decommissioning	**Veg-7**	Detailed Site Restoration Plan	NA
60 days prior to initiation of decommissioning	**Hab-7**	Rationale for and mitigation of remaining roadways, if any	NA

Notes: NA = Not Applicable; PTAG = Pre-operational Technical Advisory Group; TAC = Technical Advisory Committee

EFSEC-recommended mitigation measures for wildlife and habitat also include: **Vis-1**[18], **Vis-2**, **Vis-3**, **Vis-4**, **Vis-5**, **Vis-6**, **Vis-7**, **Vis-8**, and **Vis-9**.

Energy and Natural Resources

ENR-1[19]**:** The Applicant would provide an executed agreement to EFSEC that identifies the source and quantity of water intended to be supplied to the Project prior to its construction, operation, and decommissioning.

Rationale: Provides verification that water being used by the Project is originating from a sustainable source.

ENR-2: The Applicant would install high-efficiency electrical fixtures and appliances in the O&M facility, BESS, and substations to reduce energy needs for the Project's operations stage.

Rationale: Reduces the Project's demands on energy and natural resources.

ENR-3: The Applicant would install high-efficiency security lighting to reduce energy needs for the Project's operations stage.

Rationale: Reduces the Project's demands on energy resources.

ENR-4: The Applicant would install low-water-use flush toilets in the O&M facilities to reduce the Project's water requirements during its operations stage.

Rationale: Reduces the Project's demands on water resources.

ENR-5: The Applicant would capture and recycle wash water to reduce the Project's water requirements during its operations stage.

Rationale: Reduces the Project's demands on water resources.

ENR-6: To retrieve as much of the natural resources used in construction and operation of the Project as possible, the Applicant would demolish and recycle all components of the Project that have the potential

[18] Vis-: Identifier of numbered mitigation item for Visual Aspects

[19] ENR-: Identifier of numbered mitigation item for Energy and Natural Resources

to be used as raw materials in commercial or industrial applications. If the Applicant intends to leave any portion of the facility, including concrete foundations, they must submit a request to EFSEC in an update to their decommissioning plan.

Rationale: Reduces the Project's demands on natural resources.

Land and Shoreline Use

LSU-1[20]**:** The Applicant would prepare a livestock management plan with property owners and livestock owners to control the movement of animals within the Lease Boundary during construction, operation, and decommissioning.

Rationale: To limit conflicts between the Project and farmers and ranchers.

LSU-2: The Applicant would prepare a dryland farming management plan for construction, operation, and decommissioning that outlines communication requirements between the Certificate Holder and the land owners. The plan would establish work windows that would allow farmers uninterrupted access to their fields for dryland wheat planting and harvesting.

Rationale: To limit conflicts between the Project and farmers and ranchers.

LSU-3: The Applicant would be responsible for ensuring that arrangements for the removal of all livestock have been made during Project construction and decommissioning.

Rationale: To limit conflicts between the Project and farmers and ranchers.

LSU-4: After construction is completed, the Applicant would restore all temporary disturbance areas to their preconstruction status.

Rationale: This measure would allow the areas of temporary disturbance within the Lease Boundary to return to their preconstruction agricultural production levels as soon as possible.

LSU-5: Prior to decommissioning, the Applicant would submit a Detailed Site Restoration Plan, per WAC 463-72-050, for restoring the site to its preconstruction character. The Applicant would be responsible for working with the landowner to return all agricultural land to its preconstruction status. If future site conditions or land ownership no longer allows for the land to be returned to agricultural production, the Applicant would submit a request to EFSEC for an alternative land use that would be in alignment with the Lease Boundary's preconstruction rural character and resource value. If the Detailed Site Restoration Plan requests an alternative land use, EFSEC may require that the Applicant provide additional mitigation to offset impacts from a permanent conversion of the land.

Rationale: This measure would assist in preventing conversion of a land use that is not in alignment with the Lease Boundary's current designation.

[20] LSU-: Identifier of numbered mitigation item for Land and Shoreline Use

Historic and Cultural Resources

CR-1[21]: Traditional Cultural Properties Mitigation:

Tribal review of site/engineering plans could provide input to guide design and avoidance, without confidential disclosure of locations but such review and input has not yet occurred between the applicant and all affected tribes.

The Yakama Nation has identified numerous TCPs within the project zone of influence where the project's impacts on these TCPs cannot be mitigated, particularly legendary and monumental sites that will be forever impacted. To the extent that mitigation measures for hunting and gathering locations may lessen impacts, those measures have not yet been agreed to by the applicant.

The CTUIR proposed several mitigation strategies (CTUIR 2021a, 2021b). Potential mitigation strategies include:

- Enable continued access for Tribes through an Access Agreement (e.g., continued access to First Foods).
- Create protections for natural resources that support First Foods procurement (e.g., preserve landforms, practice responsible stream management, avoid negative impacts on pollinator species).
- Perform off-site mitigation, including education and outreach work, to assist Tribes in the perpetuation of oral history and legends that would have been taught in-situ in the Area of Analysis; engage with Tribes on appropriate rehabilitation (closure) strategies for the safeguarding of viewshed and cultural landscapes.
- Include Tribal representatives during any ground-disturbing activities (Cultural Resource Monitor).
- Develop an agreement with the Tribes in anticipation of a time when the wind farm would be considered for disassembly to restore the landscape and viewshed.

CR-2: Archaeological and Architectural Resources Mitigation: Table ES-8 sets out proposed mitigation measures for archaeological and architectural resources potentially impacted by the Project. Any mitigation strategies should be detailed in an agreement document between EFSEC, DAHP, the Tribes, and the Project proponent.

Mitigation measures are intended to minimize impacts on historic and cultural resources with high sensitivity (unevaluated resources, precontact isolates, precontact sites, historic archaeological resources, and TCPs), primarily through avoidance. If avoidance is not possible, the mitigation clarifies which resources would require a DAHP permit prior to disturbance. Mitigation measures also identify instances where engagement with DAHP, Tribes, and/or landowners would be required.

[21] CR-: Identifier of numbered mitigation item for Cultural Resources

Table ES-8: Summary of Recommendations for Archaeological and Architectural Resources Potentially Impacted by the Project

Resource ID	Resource Type	Resource Sensitivity	Required Mitigation If Avoidance Not Possible
▪ 45BN2092 ▪ 45BN2146	Archaeological Resources Precontact Isolates	Avoidance requested and recommended	▪ DAHP permit not required for disturbance ▪ Further coordination with Tribes and DAHP
▪ 45BN261 ▪ 45BN2090 ▪ 45BN2153 (precontact component)	Archaeological Resources: Precontact or multicomponent sites	Avoidance requested and recommended DAHP-issued permit required prior to disturbance	▪ Further coordination with Tribes and DAHP
▪ 45BN2081 ▪ 45BN2082 ▪ 45BN2083 ▪ 45BN2084 ▪ 45BN2086 ▪ 45BN2088 ▪ 45BN2091 ▪ 45BN2093 ▪ 45BN2138 ▪ 45BN2139 ▪ 45BN2144 ▪ 45BN2150 ▪ 45BN2155 ▪ 45BN2156 ▪ 45BN2157 ▪ 45BN2158 ▪ 45BN2163	Archaeological Resources: Historic-Period Sites and Isolates	Determined not eligible for the NRHP	▪ None

Table ES-8: Summary of Recommendations for Archaeological and Architectural Resources Potentially Impacted by the Project

Resource ID	Resource Type	Resource Sensitivity	Required Mitigation If Avoidance Not Possible
▪ 45BN205 ▪ 45BN2085 ▪ 45BN2087 ▪ 45BN2089 ▪ 45BN2140 ▪ 45BN2141 ▪ 45BN2142 ▪ 45BN2143 ▪ 45BN2145 ▪ 45BN2147 ▪ 45BN2148 ▪ 45BN2149 ▪ 45BN2151 ▪ 45BN2152 ▪ 45BN2153 (historic component) ▪ 45BN2154 ▪ 45BN2159 ▪ 45BN2160 ▪ 45BN2161 ▪ 45BN2162	Archaeological Resources (Historic Sites)	Unevaluated for the NRHP	▪ DAHP permit required prior to any disturbance ▪ Evaluate site for NRHP eligibility
▪ 667765 (Nine Canyon Road) ▪ 721665 (McNary–Badger Canyon No. 1 Transmission Line) ▪ 722996 (147407 E. Beck Road Residence) ▪ 724939 (Farmhouse and Garage) ▪ 724940 (Shop) ▪ 724941 (Machine Shed) ▪ 724942 (Grain Elevator and Grain Storage Silos)	Architectural Resources	Determined not eligible for the NRHP	▪ Notify DAHP of any anticipated physical impacts

Table ES-8: Summary of Recommendations for Archaeological and Architectural Resources Potentially Impacted by the Project

Resource ID	Resource Type	Resource Sensitivity	Required Mitigation If Avoidance Not Possible
▪ 721666 (McNary–Franklin No. 2 Transmission Line) ▪ 722995 (Grain elevator) ▪ 724937 (Nicoson Road Farmstead Barn Storage Building) ▪ 724938 (Nicoson Road Farmstead Cribbed Grain Elevator)	Architectural Resources	Determined eligible for the NRHP	▪ Notify DAHP of any anticipated physical impacts
▪ N/A	Archaeological Resources and Architectural Resources	Unidentified historic and cultural resources	▪ DAHP permit required prior to any disturbance to archaeological sites ▪ Further coordination with Tribes and DAHP

Notes:
APP = Avoidance and Protection Plan; DAHP = Washington State Department of Archaeology and Historic Preservation; NRHP = National Register of Historic Places; RCW = Revised Code of Washington

Visual Aspects, Light and Glare

Visual Aspects Mitigation

VIS-1: Relocate turbines located within the foreground distance zone (0 to 0.5 miles) of non-participating residences to avoid completely dominating views from these highly sensitive viewing locations. Siting the turbines further away would reduce the level of visual contrast and prominence (CESA 2011; BLM 2013).

VIS-2: Do not place piggyback advertising, cell antennas, commercial messages, or symbols on proposed wind turbines, as these have the potential to introduce additional visual contrast and would seem out of place in this natural-appearing agricultural landscape (BLM 2013).

VIS-3: Maintain clean nacelles and towers to avoid any spilled or leaking fluids accumulating dirt, which would contrast with the clean, white/gray wind turbines and result in increased visual contrast within the landscape (BLM 2013).

VIS-4: Avoid complete removal of vegetation beneath solar arrays during construction, where possible, to reduce contrast between the exposed soil and adjacent undisturbed areas during Project operation. If site grading requires the removal of vegetation, the area will be revegetated and maintained during Project operation (BLM 2013).

VIS-5: Install opaque fencing to directly screen views of the solar arrays where sited within 0.5 miles of KOPs (including the alignment of I-82 and other linear KOPs) or residences. To allow the proposed fencing to

blend into the setting, color-treat the fencing to minimize color contrast with the existing landscape (BLM 2013).

VIS-6: Design BESS to blend with the adjacent agricultural character, including selecting materials and paint colors to reduce contrast with the existing setting. By mimicking design characteristics of agricultural structures in the area, the BESS facilities would appear consistent with the area's agricultural setting, including the overall visual scale of those existing structures (BLM 2013).

VIS-7: Maximize the span length across highways and other linear viewing locations to decrease visual contrast at the highway crossings. By moving the structures as far from the road as possible, the effect of those structures being located directly adjacent to these linear viewing locations would be reduced (BLM 2013).

VIS-8: Choose the type of proposed transmission structure (H-frame or monopole) to best match the adjacent transmission lines and to minimize visual clutter from the introduction of different structure types into the landscape, which would result in increased visual contrast (BLM 2013).

Shadow Flicker Mitigation

SF-1[22]**:** The Applicant would attempt to avoid, minimize, and mitigate shadow flicker at nearby residences. Shadow flicker can usually be addressed by planting trees, shading windows, or other mitigation measures. As a last resort, the control system of the wind turbine could be programmed to stop the blades during brief periods when conditions result in a perceptible shadow flicker.

SF-2: The Applicant would set up a complaint resolution procedure that would include the following: 1) A 24-hour "hot line" or other form of communication that the public can use to report any undesirable shadow flicker associated with the operation of the wind turbines, with the ability to log the date and time of a complaint. This line of communication would be maintained for at least one year, at which time it could be reassessed to continue or be terminated; 2) An attempt to contact the complainant within 24 hours; and 3) A requirement to report any complaints and their resolution to EFSEC during monthly reports to the Council.

Light Mitigation

LIG-1[23]**:** The Project would be constructed with LEED-certified building exterior(s) and security lighting to minimize vertical and horizontal illuminance to keep the lighting on site and to reduce impacts at the Lease Boundary and beyond.

Glare Mitigation

There are no recommended mitigation measures proposed for glare.

[22] SF-: Identifier of numbered mitigation item for Shadow Flicker

[23] LIG-: Identifier of numbered mitigation item for Light

Noise and Vibration

Construction and Decommissioning

N-1[24]**:** Avoid laydown and equipment storage/parking areas closer than 2,500 feet from the nearest NSR location.

Rationale: These laydown and storage areas would have more noise sources for longer periods of time than other areas; therefore, siting these locations further from NSR locations would limit the sound level and the duration that such equipment could impact an NSR.

N-2: Limit large, noise-generating equipment operations, such as earth-moving equipment, cranes, and trucks, as outlined in Table 4.11-7, to daytime hours (between 7 a.m. and 10 p.m.), and limit the loudest and most impulsive pieces of construction equipment and activities, such as pile-driver operations and blasting, to typical working hours only: 7 a.m. to 6 p.m., Monday through Saturday.

Rationale: This measure would ensure that a typical workday would not include pile-driver operations or blasting during evening hours (6 p.m. to 10 p.m.) but could include some on-site activities during nighttime hours such as early-morning setup and preparation for the workday. Nighttime operations would be atypical. The purpose is to limit noise impacts during sensitive hours while allowing contractors some flexibility.

N-3: Monitor noise during nighttime construction operations (between 10 p.m. and 7 a.m.), when construction activities have the potential to impact NSRs or reduce activities to ensure that construction noise does not exceed state noise limits.

Rationale: This monitoring would take place throughout the entirety of the nighttime hours or until construction activities cease.

N-4: Update the Applicant's noise complaint resolution procedure to better address and respond to noise complaints from the public. The updates include the following: a complaint hotline during construction and providing a phone number to be posted on signage throughout the construction project and ensure that current site contact information is maintained with EFSEC. The Applicant would log all correspondence and promptly follow up with inquiries to provide appropriate resolution. The correspondence and resolutions would be logged throughout the construction process, and the log would be made available to EFSEC during routine reporting or upon request. During the operation stage, the site would be staffed and contact information would be available

Rationale: This measure would better address and respond to noise complaints from the public.

Operation

N-5: Establish a noise complaint resolution procedure similar to that proposed for construction and decommissioning to better address and respond to noise complaints.

Rationale: This measure would better address and respond to noise complaints from the public.

N-6: Maintain operation of the "noise hot line" (or similar) until the Project has been operational for at least one year at which time this can be reassessed to continue or be terminated.

[24] N-: Identifier of numbered mitigation item for Noise

Recreation

R-1[25]**:** The Certificate Holder would coordinate with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within the Lease Boundary (e.g., multi-use trails).

Rationale: To mitigate the potential loss of recreational activities due to the Project.

R-2: The Certificate Holder would provide a minimum of five informational boards approved by DNR and EFSEC at viewpoints associated with scenic areas of interest. The construction of the informational boards would be completed within five years of the beginning of construction.

Rationale: To mitigate the loss of uninterrupted views of scenic viewpoints and provide information to the public regarding the Project, the Project's expected years of operation and the reclamation of the Project. Additionally, photographs of the viewshed prior to the construction of the Project should be displayed, in color, on the informational boards.

R-3: To mitigate the loss of safe recreation use for recreation enthusiasts, the Certificate Holder would coordinate with local and regional (when appropriate) recreation groups (e.g., the Northwest Paragliding Club, the Tri-City Bicycle Club) to develop and maintain an adaptive safety management plan to continue access to recreation activities in the Project area while keeping recreation enthusiasts safe. This plan should identify potential hazards within the Project Area (e.g., construction on or near common bicycle paths, no fly zones, etc.) and provide opportunities to identify or improve other similar recreation use areas to offset any recreation removed from the Project area as a result of the Project. Specific to paragliding, the Certificate Holder would perform outreach to other regional paragliding entities to share the safety management plan to ensure that recreationists are aware of the limitations the Project creates for safe landing and safe air space.

Rationale: To mitigate the loss of safe use for recreation enthusiasts.

Public Health and Safety

PHS-1[26]**: Fire Suppression Aircraft Access:** In the event of a major wildfire occurring in an area where fire suppression aircraft may need access near the Project, whether related to the Project or resulting from another cause, the Applicant would shut down turbines temporarily.

Rationale: This mitigation measure would allow access for fire suppression aircraft carrying water and fire suppression chemicals, as needed.

Transportation

TR-1[27]**:** The load movement team would review the procedures to be followed if the load should become lodged at a crossing and would review the emergency contact numbers for each crossing daily—that is, before starting travel for the day.

Rationale: Ensures safe practices during the transportation of materials for construction and decommissioning.

[25] R-: Identifier of numbered mitigation item for Recreation

[26] PHS: Identifier of numbered mitigation item for Public Health and Safety

[27] TR-: Identifier of numbered mitigation item for Transportation

TR-2: The Applicant would work with WSDOT and Operation Lifesaver to provide train safety presentations to employees and contractors to increase knowledge regarding train safety, including train track crossings. Since this measure cannot be required by EFSEC, it cannot be considered fully effective mitigation for the purpose of this analysis.

Rationale: Lessens potential collisions at train crossings.

TR-3: A third-party engineer would provide a traffic analysis prior to decommissioning. The traffic analysis would evaluate all modes of transportation (e.g., waterways, rail, roads, etc.) used for the movement of people and materials during decommissioning via the haul route(s) in Washington State.

Rationale: Ensures that no changes have occurred since the traffic analysis was originally provided prior to construction.

TR-4: All railroad crossing and grade changes would be included in a route survey performed by a third-party engineer with the Washington Utilities and Transportation Commission participating to determine if current traffic control systems at crossings are appropriate or if additional mitigation is needed prior to decommissioning. The route survey would include anticipated traffic counts. Since this measure would require the participation of other agencies before it could be implemented, it cannot be considered fully effective mitigation for the purpose of this analysis.

Rationale: Ensures that no changes have occurred since the route survey was originally provided prior to construction.

TR-5: The analysis of impacts from decommissioning is based on existing laws and regulations at the time when the Final ASC was submitted to EFSEC. The Applicant would consult with WSDOT and Benton County on the development of a decommissioning-stage Traffic and Safety Management Plan prior to decommissioning. The Traffic and Safety Management Plan must include a safety analysis of the WSDOT-controlled intersections (in conformance with the WSDOT Safety Analysis Guide) and recommend mitigation or countermeasures where appropriate. The analysis would review impacts from decommissioning traffic and be submitted to WSDOT for review and comment prior to decommissioning. Since this measure would require the participation of other agencies before it could be implemented, it cannot be considered fully effective mitigation for the purpose of this analysis. EFSEC would work with the identified agencies to facilitate cooperation in implementing this mitigation measure.

Rationale: Ensures that no changes have occurred to the laws and regulations used in this analysis.

TR-6: The Applicant provided a Traffic Impact Analysis (TIA) with the Final ASC (Horse Heaven Wind Farm, LLC 2023). Oversize truck routes to the Project Area were analyzed using I-82, north through State Route 397, Locust Grove Road, and Plymouth Road. Additionally, the delivery of turbine towers was only analyzed from I-82 to the Locust Grove/State Route 397 exit. The use of additional routes for oversize or overweight deliveries may require supplemental analysis and requires approval by EFSEC.

Rationale: Ensures consistency with state and county transportation plans and codes.

TR-7: Coordinate with WSDOT, Benton County, and EFSEC prior to construction and prior to demolition on potential mitigation for intersections with safety concerns.

Rationale: Ensures safe practices during the transportation of materials for construction and decommissioning.

Public Services and Utilities

PSU-1[28]**:** To address the potential for the inappropriate disposal of Project waste, the Applicant would dispose of all non-recyclable Project components in an appropriately licensed waste disposal facility.

Rationale: This mitigation measure prevents disposal of Project-related wastes in inappropriate landfills or unauthorized facilities.

EFSEC-recommended mitigation measures for the Public Services and Utilities also includes: **ENR-5** and **ENR-7**.

Socioeconomics

Socio-ec-1[29]**:** Prior to decommissioning, the Applicant would provide an up-to-date analysis on the availability of temporary housing for workers. If sufficient temporary housing for workers is not available, the Applicant would present EFSEC with options for housing workers from outside the community.

Rationale: This mitigation measure would minimize adverse impacts on the availability of housing for residents of the surrounding communities.

[28] PSU-: Identifier of numbered mitigation item for Public Services and Utilities

[29] Socio-ec-: Identifier of numbered mitigation item for Socioeconomics

Attachment ES-3-2

Tables ES-3a through ES-3c and Tables ES-4a through ES-4c

Summary of Potential Impacts of the Comprehensive Project and by Project Component during Construction, Operations and Decommissioning

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Table ES-3a

Summary of Potential Impacts of Comprehensive Project during Construction of the Proposed Action

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Table ES-3a: Summary of Potential Impacts of Comprehensive Project during Construction of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Earth Resources (Section 4.2)	Geology (Landscape)	Adverse impacts on geology would occur from the installation of deep turbine foundations.	Low	Constant	Probable	Limited	No mitigation identified	None identified
Earth Resources (Section 4.2)	Soils (Landscape)	The disturbance to natural soil profiles could result in a temporary increase in localized soil erosion. These activities are likely to include site clearing, excavation, and backfilling. The construction and erection of turbine tower foundations would disturb soil resources as the contractor excavates unsuitable material from the Project area.	Low	Short term	Unavoidable	Confined	**Geo-1:** Avoid construction during wet periods **A-1:** Limit traffic speeds **Veg-7:** Detailed Site Restoration Plan **W-2:** Minimize work in heavy rain **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Topography (Landscape)	Construction activities that would impact topography include excavation, grading, and cut-and-fill-slope development. Limited grading and/or placement of additional fill may be needed to obtain necessary grades for access roads, building foundations, and leveling the ground. Surface disturbance from construction-related activities would impact topography around each turbine.	Low	Short term	Unavoidable	Confined	**Geo-1:** Avoid construction during wet periods **A-1:** Limit traffic speeds **LSU-4:** Restoration of temporary disturbance to preconstruction status	None identified
Earth Resources (Section 4.2)	Earthquakes (Safety)	Prolonged earthquake-induced ground shaking could cause minor damage to infrastructure if shaking has an intensity and duration that exceeds code-based structural seismic design levels.	Negligible	Temporary	Feasible	Confined	No mitigation identified	None identified
Earth Resources (Section 4.2)	Landslide Hazards and Ground Instability (Safety)	The Project site includes areas susceptible to landslides and bluff failures. Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Geo-1:** Avoid construction during wet periods **Veg-7:** Detailed Site Restoration Plan **W-2:** Minimize work in heavy rain **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified

Notes:
Table continues below, notes apply to remainder of table
[a] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[b] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[c] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; ASC = Application for Site Certification; BESS = battery energy storage system; BMP = best management practice; dBA = A-weighted decibels; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; mph = miles per hour; NRHP = National Register of Historic Places; NSR = noise sensitive receptor; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SWPPP = stormwater pollution prevention plan; TAC = Technical Advisory Committee; Tribes = Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Wanapum Tribe; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

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Earth Resources (Section 4.2)	Volcanic Activity (Safety)	Hazards from ashfall to construction activities would include the following: ▪ Accumulation of ash on structures ▪ Clogging of electronics, machinery, and filters ▪ Suspension of abrasive fine particles in air and water ▪ Accumulation of ash on transportation routes and vegetation	Negligible	Temporary	Unlikely	Confined	No mitigation identified	None identified
Air Quality (Section 4.3)	Air Quality (Quantity of Emissions, Compatibility with Applicable Rules, Regulations, and Plans, Potential Exposure to Sensitive Receptors)	Adverse impacts on air quality may occur during construction from $PM_{2.5}$, PM_{10}, and fugitive dust	Low	Short Term	Probable	Confined	**A-1:** Limit speeds to less than 15 mph on dirt roads.	None identified
Water Resources (Section 4.4)	Physical Disturbance	Project construction would require temporary and permanent disturbance, which could impact surface water and wetlands, surface runoff/absorption, floodplains, and groundwater.	Low	Short Term (for temporary disturbance) Long Term (for permanent disturbance)	Unavoidable	Confined	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-4:** Culvert Installation BMPs. **W-6:** Wetland SWPPP. **W-7:** Clear-span 100-Year Floodplain. **W-11:** Concrete Batch Plant to Avoid Streams	None identified
Water Resources (Section 4.4)	Change in Water Quality	Project construction could result in a change to water quality of waterways that intersect or are located adjacent to Project construction activities.	Low	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-5** Employee Training. **W-6:** Wetland SWPPP. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Change in Hydrology – Temporary Disturbance	Temporary disturbance from Project construction within ephemeral and intermittent streams could result in changes to the hydrology of waterways.	Low	Short Term	Unlikely	Limited	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-4:** Culvert Installation BMPs.	None identified
Water Resources (Section 4.4)	Change in Hydrology – Permanent Disturbance	Project construction would require a culvert installation on one intermittent stream that could result in changes to the hydrology of the stream.	Low	Long Term	Unavoidable	Limited	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-4:** Culvert Installation BMPs.	None identified

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Water Resources (Section 4.4)	Introduction of Hazardous Substances	Project construction could result in the introduction of hazardous substances that could impact surface water and wetlands, floodplains, and groundwater.	Low	Temporary	Unlikely	Local	**W-7:** Employee Training. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)[30]	Public Water Supply	Project construction activities would rely on water sourced from local public facilities, local private irrigators, and/or collector wells fed from regional aquifers.	Medium	Temporary	Feasible	Regional	**W-9:** Minimize Water Use.	None identified
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Temporary Disturbance	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat - Permanent Disturbance	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent Other Habitat – Temporary Disturbance	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Low	Short Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified

[30] Blue highlight identifies Impacts of Medium and High magnitude.

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Vegetation (Section 4.5)	Loss of Extent of Other Habitat – Permanent Disturbance	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with other habitat.	Low	Long Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified
Vegetation (Section 4.5)	Loss of Extent of Special Status Plant Species	Site clearing associated with the construction of the Project would result in direct loss of populations of special status plant species or their habitat.	Medium	Constant	Feasible	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Habitat Degradation	Construction activities could result in habitat degradation from introduction of hazardous material, surface runoff, introduction and spread of invasive plants or noxious weeds, and deposition of dust.	Low	Long Term	Feasible	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Construction activities could result in habitat fragmentation from fire.	Low	Long Term	Feasible	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified
Wildlife and Habitat (Section 4.6)	Habitat Loss	The Project would result in the direct loss of habitat through construction of the Wind Energy Micrositing Corridor and associated transportation routes. *The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.*	Medium	Short Term for temporary disturbances (e.g., construction laydown areas) Constant for permanent footprint loss (e.g., turbine footprint)	Unavoidable	Local	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** *Tree Avoidance.*	None identified

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Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works. *Wildlife-vehicle collisions may occur during Project construction due to increased traffic.*	Low	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC. **Hab-6:** *Work with EFSEC on final Project layout and design.*	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	Turbines, power lines, roadways, and other linear infrastructure could create barriers to wildlife movement and fragment habitat. *Barriers and fragmentation created during construction would predominantly remain through operation.*	Low	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** *Work with EFSEC on final Project layout and design.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: striped whipsnake and sagebrush lizard	Impacts on shrub and shrub-steppe habitat may result in loss of suitable reptile habitat. *Mortality of reptile species could occur during construction from heavy machinery and land clearing and grubbing.*	Low	Constant	Feasible	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-1:** *Implement striped whipsnake and sagebrush lizard specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: American white pelican	Construction of the Project may disturb American white pelicans moving over the Lease Boundary.	Negligible	Short Term	Unlikely	Limited	**Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-2:** *Implement American white pelican specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: bald eagle	Construction of the Project could disturb bald eagles, resulting in avoidance of the Project Site.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction. disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-1:** Tree Avoidance. **Spec-3:** *Implement eagle specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: burrowing owl	Construction may result in direct and indirect habitat loss and the destruction of burrows (active, inactive, and potential). Mortality may occur during vegetation and ground-disturbing works.	Medium	Constant (habitat loss) Short Term (disturbance, mortality)	Unavoidable (habitat loss) Probable (disturbance) Feasible (mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-4:** *Implement burrowing owl specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Construction of turbines and associated roads and power lines may result in the direct and indirect loss of habitat in core and range ferruginous hawk habitat. *Nesting success could be impacted by construction activities near the nest or activities change prey abundance.*	High	Constant (habitat loss) Short Term (disturbance)	Unavoidable (habitat loss) Probable (disturbance)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-5**: *Implement ferruginous hawk specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: golden eagle	Construction of the Project could disturb golden eagles, resulting in avoidance of the Project site, though golden eagle nesting has not been reported within 10 miles of the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Spec-3:** *Implement eagle specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: great blue heron and sandhill crane	Construction may disturb birds flying over the Lease Boundary, resulting in bird flight paths being diverted around the area. *Construction may result in the loss of foraging habitat.*	Negligible	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Feasible (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Spec-6:** *Implement great blue heron, sandhill crane, and tundra swan specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	Construction may result in direct and indirect (disturbance) habitat loss. Mortality may occur from interactions with machinery and destruction of nests.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on Final Project layout and design. **Hab-8:** Mitigation options **Spec-7:** *Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	Construction of the Project is predicted to result in the direct loss of suitable foraging habitat for prairie falcon. Disturbance from construction activities may result in disturbance to prairie falcons.	Medium	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Spec-8**: *Implement prairie falcon specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: ring-necked pheasant	Construction of the Project is predicted to result in the direct loss of suitable foraging habitat for ring-necked pheasant. Disturbance from construction activities may result in indirect habitat loss. *Access roads may result in collisions with ring-necked pheasants.*	Low	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-9:** *Implement ring-necked pheasant specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: sagebrush sparrow sage thrasher	Construction may result in direct and indirect habitat loss. Mortality may occur from interactions with machinery and destruction of nests.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-7:** *Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Construction may result in the disturbance and loss of suitable foraging habitat and disruption of birds flying over the Lease Boundary.	Low	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Feasible (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Spec-6:** *Implement great blue heron, sandhill crane, and tundra swan specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Vaux's swift	Construction of the Project could disturb Vaux's swift in flight over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** *Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: black-tailed jackrabbit white-tailed jackrabbit	Construction of the Project is predicted to result in the direct loss of suitable habitat for jackrabbit. Disturbance from construction activities may result in indirect habitat loss. *Access roads may result in collisions with jackrabbits, barriers to movement, and increased fragmentation.*	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-10:** *Implement black and white-tailed jackrabbit specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	Construction activities could disturb Townsend's big-eared bat foraging within the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-7:** Schedule construction during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** *Implement Townsend's big-eared bat specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: Townsend's ground squirrel	Construction of the Project and associated access roads are predicted to result in the loss of suitable Townsend's ground squirrel habitat and destruction of colonies. *Mortality may occur during construction work near colonies and along access roads.*	Medium	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-12:** *Implement Townsend's ground squirrel specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	Construction is predicted to result in direct loss of pronghorn antelope habitat. Activity associated with construction may result in indirect habitat loss. *Increased traffic on existing and new access roads may result in pronghorn antelope mortality.*	Medium	Constant (habitat loss) Short Term (construction disturbance)	Unavoidable (habitat loss) Probable (disturbance)	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-13:** *Implement pronghorn antelope specific mitigation.*	None identified
Energy (Section 4.7)	Consumption of Raw Materials and Commodities	The Project's construction would require metal and concrete for turbine, solar array, BESS, substation, and building construction and fuel for construction equipment and vehicles and various raw materials for manufacturing. The Project's construction water requirements would amount to approximately 3% of the annual water produced by Kennewick. Impact magnitude would increase from low to medium if the City of Kennewick Utility Services Division of Public Works is required to make adjustments to their water management plans.	Low to Medium (i.e., will increase if the City of Kennewick Utility Services Division of Public Works is required to make adjustments to their water management plans)	Short Term	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement	None identified

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Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Similar to Turbine Option 1 and solar arrays	Low (decreased productivity) Medium (operational changes)	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock	None identified
Land and Shoreline Use (Section 4.8)	Wineries and agritourism (Profitability)	Wineries and agri-tourism businesses Wine industry and wine tasting tourism could be impacted from changes in general environmental settings through potential changes in viewing opportunities from wineries that are in proximity to the Project.	Low	Short Term	Feasible	Local	No mitigation identified	None identified
Historic and Cultural Resources (Section 4.9)	Precontact Archaeological resources; DAHP-issued permit required prior to disturbance - OR - Avoidance requested and recommended	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	High	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Historic-period archaeological isolates and sites determined not eligible for the NRHP	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural resources determined not eligible for the NRHP	*Adverse effects on resources through a loss or diminishment of integrity*	Negligible	Constant	Probable	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	*None identified*

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Historic and Cultural Resources (Section 4.9)	Unevaluated archaeological historic-period sites	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Medium	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Adverse effects on resources through a loss or diminishment of integrity	Low	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Physical impacts	High	Constant	Unlikely	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unidentified historic and cultural resources	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity.	High	Constant	Feasible	Local	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of an Inadvertent Discovery Plan	*None identified*
Historic and Cultural Resources (Section 4.9)	Traditional Cultural Properties	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference.	High	Short term for impacts from noise, dust, and use of large equipment and heavy machinery. Constant for impacts from construction of turbines and fencing and the acquisition of land.	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties.

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Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	Activities would attract attention and would modify the existing landscape setting. Due to the additive effect of the different Project features, these impacts would affect a larger area.	Medium	Short Term	Probable	Regional	No mitigation identified	None identified
Visual Aspects, Light and Glare (Section 4.10)	Light	Activities would be completed mainly during daytime hours without the need for nighttime lighting.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified
Visual Aspects, Light and Glare (Section 4.10)	Glare	Activities could generate glare from construction equipment or solar panels.	Low	Temporary	Feasible	Confined	No mitigation identified	None identified
Noise and Vibration (Section 4.11)	Noise and Vibration (Noise from– Construction Equipment)	Most noise sensitive receptors would receive sound levels below 55 dBA during construction, with the potential to be up to 10 dBA over baseline. One noise sensitive receptor could receive sound levels at 55 dBA during construction of one turbine.	Medium	Temporary	Probable	Limited	**N1:** Avoid laydown and equipment storage/parking areas near NSRs **N2:** Limit the use of noise-generating equipment to daytime hours (7 a.m. to 10 p.m.) and loud equipment to working hours (7 a.m. to 6 p.m.) **N-3:** Monitor noise during nighttime operations construction (10 p.m. to 7 a.m.) with the potential to impact NSRs **N-4:** *Set up a 24-hourUpdate the Applicant's "noise hot line" complaint resolution procedure or similar and update the Applicant's noise complaint resolution procedure to include contacting and reporting details*	None identified
Noise and Vibration (Section 4.11)	Noise and Vibration (Noise from– Blasting)	Sound levels can reach up to 140 dBA at blast locations and 90 dBA at 500 feet.	Low	Temporary	Feasible	Limited	**N2:** Limit blasting to working hours (7 a.m. to 6 p.m.)	None identified
Recreation (Section 4.12)	Recreation – Use	Construction of the comprehensive Project would result in a high impact due to the restriction of access to public land and recreational activities that occur on public land within the Project's construction area. The impact would be long term for the duration of the life of the Project, unavoidable, and local.	High	Long Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails) **R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Recreation (Section 4.12)	Recreation – Recreational Experience	Indirect impacts related to visual resources and noise could occur at recreation sites.	High	Long Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest.	None identified

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Recreation (Section 4.12)	Recreation – Public Health and Safety	The Project's potential to affect the health and safety of recreationists using the area for paragliding, hang gliding, or biking would result in a medium impact.	Medium	Long Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. For instance, combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during construction. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. For instance, combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during construction. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Regional	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Public Health and Safety (Hazardous Materials Release)	Hazardous materials, including diesel fuel, lubricating oils, hydraulic fluid, paints, and solvents would be used and stored on site. Spill kits would be maintained, minimizing the risk of a release if a spill were to occur.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified
Transportation (Section 4.14)	Vehicular Traffic	Traffic volumes would increase measurably during transportation of material and equipment for the construction of the turbines. The potential for traffic volumes and slower, oversized roads would likely decrease level of service for intersections near the Lease Boundary and highways/ freeways. The increase in traffic volumes and the size of construction material may decrease roadway safety at intersections near the Project or on railroad crossings.	Medium	Short Term	Unavoidable	Regional	**TR-1:** Daily transport communication, including emergency numbers. **TR-2:** Operation Lifesaver safety presentation and training. **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified
Public Services and Utilities (Section 4.15)	Wastewater (Level of Service and Safety)	The amount of wastewater produced from the maximum number of temporary workers on site (467), while measurable, would not impact the ability of the local utility to treat the community's sewage.	Low	Short Term	Unavoidable	Local	No mitigation identified	None identified

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Public Services and Utilities (Section 4.15)	Municipal Solid Waste (Level of Service)	Solid waste from the Project's construction would consist of various quantities of non-hazardous construction wastes. The landfills identified in the ASC maintain substantial capacity that would be sufficient to serve the Project and the region, simultaneously.	Low	Constant	Unavoidable	Local to Regional (depending on location of landfill)	**ENR-7:** Recycle all applicable components **PSU-1:** Use of a licensed waste disposal facility	None identified
Public Services and Utilities (Section 4.15)	Potable Water (Level of Service and Safety)	The impact on human health and wellbeing would result from a reduction in potable water in the surrounding community or the capability to manage wastewater and construction debris.	Negligible	Temporary (accident) Constant (storage)	Unlikely	Limited to Regional (depending on location of disposal facility)	No mitigation identified	None identified
Socioeconomics (Section 4.16)	Economic Environment (Housing Availability)	Phase 1 is anticipated to directly support an average monthly workforce of 300, and Phases 2a and 2b are anticipated to support an average monthly force of 267 and 271, respectively. The majority of construction workers would be sourced locally; however, the Project's construction would require the temporary and short-term relocation of non-local construction workers into the region. As reported in the 2019 American Community Survey 5-Year Estimate, rental vacancy rate in Benton County was 5.1%, with 1,660 units available for rent.	Negligible	Temporary to Short Term	Feasible	Regional	*No mitigation identified*	None identified
Socioeconomics (Section 4.16)	Environmental Justice (People of Color and Low-Income Populations)	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Short Term	Feasible	Confined to Regional	*No mitigation identified*	None identified

Notes:
[a] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[b] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[c] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.

Applicant = Horse Heaven Wind Farm, LLC; ASC = Application for Site Certification; BESS = battery energy storage system; BMP = best management practice; dBA = A-weighted decibels; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; mph = miles per hour; NRHP = National Register of Historic Places; NSR = noise sensitive receptor; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter; SWPPP = stormwater pollution prevention plan; TAC = Technical Advisory Committee; Tribes = Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Wanapum Tribe; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

Table ES-3b

Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action

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Table ES-3b: Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action

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Earth Resources (Section 4.2)	Geology (Landscape)	Impacts on the underlying basalt bedrock are not expected to include deep excavations that encounter geologic resources.	Negligible	Temporary	Feasible	Limited	No mitigation identified	None identified
Earth Resources (Section 4.2)	Soils (Landscape)	It is anticipated that no new ground disturbance would occur. Access roads and cleared areas could be susceptible to increased soil erosion from a lack of stabilizing vegetation or hard cover and prior disturbance of the local soil profile. Soil erosion, because of operations, would be limited to gravel-surfaced areas, including the apron constructed around each turbine.	Low	Temporary	Feasible	Limited	**A-1:** Limit traffic speeds **Veg-7:** Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Topography (Landscape)	Facility operation would not require further excavation of existing ground surfaces or additional grading. Furthermore, it is anticipated that ground improvement techniques used during the construction stage would mitigate soils susceptible to erosion by improving their engineering performance and reducing their potential for settlement.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified
Earth Resources (Section 4.2)	Earthquakes (Safety)	Prolonged earthquake ground shaking could cause minor damage to infrastructure if the intensity and duration of the shaking exceed code-based structural seismic design levels.	Low	Temporary	Feasible	Confined	No mitigation identified	None identified
Earth Resources (Section 4.2)	Landslide Hazards and Ground Instability (Safety)	Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Veg-7:** Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Volcanic Activity (Safety)	Ashfall and ash accumulation have the potential to reduce the photovoltaic-generated power of the solar panel as well as damage the solar arrays' components	Low	Temporary	Unlikely	Confined	No mitigation identified	None identified

Notes:
Table continues below, notes apply to remainder of table
[a] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[b] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[c] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS = battery energy storage system; dBA = A-weighted decibels; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; FAA = Federal Aviation Administration; FTE = full-time equivalent KOP = key observation point; LEED = Leadership in Energy and Environmental Design; mph = miles per hour; O&M = operations and maintenance; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife; ZOI = zone of influence

Table ES-3b: Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action

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Air Quality (Section 4.3)	Air Quality (Quantity of Emissions, Compatibility with Applicable Rules, Regulations, and Plans, Potential Exposure to Sensitive Receptors)	Adverse impacts on air quality may result from operation and maintenance activities (primarily vehicular emissions).	Negligible	Short Term	Probable	Confined	**A-1:** Limit speeds to less than 15 mph on dirt roads.	None identified
Water Resources (Section 4.4)	Panel Washing	Project operations would require water to wash solar array panels, which would infiltrate the surrounding ground and could impact water resources.	Negligible	Temporary	Unlikely	Confined	**W-9:** Minimize Water Use. **W-10:** Panel Washing.	None identified
Water Resources (Section 4.4)	Surface Water Runoff from Impervious Surfaces	Project operations would increase impervious surfaces, which could lead to increased water runoff to water resources.	Low	Temporary	Unlikely	Local	No mitigation identified	None identified
Water Resources (Section 4.4)	Introduction of Hazardous Substances	Project operations could result in the accidental release of hazardous substances that could impact water resources.	Negligible	Temporary	Unlikely	Limited	**W-5:** Employee Training. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Impacts on Public Water Supply	Project operations would rely on water from public water supply for operations.	Low	Temporary	Feasible	Regional	**W-9:** Minimize Water Use. **W-10:** Panel Washing.	None identified
Vegetation (Section 4.5)	Vegetation Maintenance	During Project operation, vegetation may require maintenance, such as cutting or removal, for areas under the solar arrays, or along roadways.	Negligible	Long Term	Probable	Confined	No mitigation identified	None identified
Vegetation (Section 4.5)	Habitat Degradation	Project operations could result in habitat degradation from the introduction of hazardous substances, introduction and spread of noxious weeds and invasive plants, and deposition of dust.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Hab-4:** Pre-operational Technical Advisory Group	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Project operations could result in habitat fragmentation from edge effects and fire.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-9:** Maintenance of Solar Array Fence **Hab-4:** Pre-operational Technical Advisory Group	None identified

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Wildlife and Habitat (Section 4.6)[31]	Habitat loss	The Project would result in the direct loss of habitat through operation of the turbines and associated infrastructure. The Project may result in indirect habitat loss through degradation of habitat in ZOI created by disturbances (e.g., noise, light) from turbines and associated infrastructure.	Medium	Constant	Unavoidable	Local	**Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Veg-4:** As-built report and offset calculation.	None identified
Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	The Project may result in mortality of aerial species (birds and bats) through collisions with turbines, strikes with power lines, windows, and weather towers. Other sources of mortality on wildlife, including non-aerial species, include vehicle collisions and changes in food availability.	Medium	Long Term	Probable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-6:** *Work with EFSEC on final Project layout and design.*	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	The operation of turbines, power lines, roadways, and other linear infrastructure could result in barriers to wildlife movement and fragment habitat. Barriers and fragmentation created during construction would predominantly remain through operation.	Medium	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-4:** *As-built report and offset calculation.*	None identified

[31] Blue highlight identifies Impacts of Medium and High magnitude.

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Wildlife and Habitat (Section 4.6)	Special status species: Striped whipsnake and sagebrush lizard	Impacts on shrub and shrub-steppe habitat may result in loss of suitable reptile habitat. Increased road networks within the Lease Boundary could increase the risk of mortality sagebrush lizard and striped whipsnake. Roadways may create barriers to reptile movement and further fragment reptile habitat.	Low	Constant	Feasible	Confined	**Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-1:** *Implement striped whipsnake and sagebrush lizard specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: American white pelican	American white pelicans have the potential for collision with turbines, and electrocution with overhead transmission lines. *American white pelicans could collide with solar arrays as literature suggests water-associated birds may attempt to land on solar arrays if they are mistaken for water (lake effect).*	Medium	Long Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-2***: Implement American white pelican specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: bald eagle	Bald eagles are estimated to be the 17th most likely large bird to collide with the turbines, with an estimated exposure index of 0.01. Further, turbines could create barriers to bald eagle movement over the Lease Boundary.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-3:** *Implement eagle specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: burrowing owl	Permanent habitat loss from turbine footprint and roads would persist throughout operation. *Operation of turbines could result in indirect burrowing owl habitat loss. Burrowing owls are not expected to collide with turbines but are susceptible to road-based mortality. Further, changes in prey distribution and abundance may change foraging.*	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-4:** *Implement burrowing owl specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Operation of the turbines could result in mortality due to collisions with turbines and power lines. Change in prey abundance may reduce hawk survivorship. *Operation may also reduce the re-occupancy of nesting territories due to disturbance.*	High	Constant	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-5:** *Implement ferruginous hawk specific mitigation.*	None identified

Table ES-3b: Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Wildlife and Habitat (Section 4.6)	Special status species: golden eagle	Golden eagles are estimated to be the 22nd most likely large bird to collide with the turbines. Further, turbines could create barriers to golden eagle movement over the Lease Boundary.	Medium	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-3:** *Implement eagle specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: great blue heron and sandhill crane	The operation of wind turbines may result in great blue heron and sandhill crane mortality and disturbance.	Medium	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** *Implement great blue heron, sandhill crane, and tundra swan specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	Direct and indirect habitat loss would persist throughout Project operation. Loggerhead shrike mortality may occur due to strikes with turbines.	Medium	Constant	Unavoidable	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-6**: Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** *Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.*	None identified

Table ES-3b: Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	Direct habitat loss would persist throughout Project operation. Operation of the turbines may disturb prairie falcons foraging within the Lease Boundary. Operation of the turbines may result in mortality of prairie falcons. *Changes in prey density may change habitat suitability and survivorship of prairie falcons.*	Medium	Constant	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-8:** *Implement prairie falcon specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: ring-necked pheasant	Direct habitat loss would persist through Operation. Operation of the turbines may also result in indirect habitat loss. Ring-necked pheasant mortality may occur due to Project operation. *Access roads may result in collisions with ring-necked pheasants.*	Low	Long Term	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-9:** *Implement ring-necked pheasant specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: sagebrush sparrow and sage thrasher	Direct and indirect habitat loss would persist throughout Project operation.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** *Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.*	None identified

Table ES-3b: Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Operation of turbines may result in the continued loss and disturbance of foraging habitat. *Operation of Option 1 may result in tundra swan mortality through collision with turbines.*	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Veg-4:** As-built report and offset calculation. **Spec-6***: Implement great blue heron, sandhill crane, and tundra swan specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Vaux's swift	Vaux's swift migrating over the Lease Boundary are susceptible to strikes during migration.	Low	Long Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** *Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Operation of the turbines may result in indirect loss of jackrabbit habitat and mortality along access roads. Direct habitat loss is expected to persist throughout operation.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-10:** *Implement black and white-tailed jackrabbit specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	Townsend's big-eared bat mortality may occur due to Project operation. *Operation may result in indirect loss of foraging habitat.*	Low	Long Term	Probable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program **Wild-4:** Avoid use of pesticides and rodenticides **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** *Implement Townsend's big-eared bat specific mitigation.*	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: Townsend's ground squirrel	Townsend's ground squirrel mortality may continue along access roads during operation. *Operation of the solar arrays may alter Townsend's ground squirrel behavior by providing shelter. Mortality may occur along access roads.*	Medium	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-12:** *Implement Townsend's ground squirrel specific mitigation.*	None identified
Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	Operation of the Project may result in direct and indirect habitat loss to pronghorn antelope. Pronghorn antelope mortality may occur along maintenance roads.	Medium	Constant	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-13:** *Implement pronghorn antelope specific mitigation.*	None identified
Energy (Section 4.7)	Consumption of Raw Materials and Commodities	Project maintenance may require generator-specific lubricants and fluids produced outside the Project vicinity. O&M vehicles would need an ongoing supply of fuel purchased locally. Water for the Project's O&M facility and solar panel washing would be purchased from a local vendor and sourced from Kennewick. Aggregate for access road maintenance would be obtained locally.	Low to Medium	Long Term	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement **ENR-2:** Install high-efficiency electrical fixtures and appliances **ENR-3:** Install high-efficiency security lighting **ENR-4:** Install low-water-use flush toilets **ENR-5:** *Capture and recycle wash water*	None identified

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Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Impacts on agricultural activities from operation of the comprehensive Project would be similar to those presented for Turbine Option 1 and the solar arrays. However, when considering the impact of the comprehensive Project, the possibility for a conflict between the planned management of agricultural activities within the Lease Boundary and Project operations increases when compared with any individual component.	Low (decreased productivity) Medium (operational changes)	Long Term	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan	None identified
Land and Shoreline Use (Section 4.8)	Wineries and agritourism (Profitability)	Changes in landscape character through the introduction of turbines that could be seen from wineries and agritourism businesses would indirectly impact wine-tasting tourism.	Low	Long Term	Probable	Local	**VIS-1–- VIS-9** For details on these mitigation measures, refer to Section 4.10	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Adverse effects on resources through a loss or diminishment of integrity.	Low	Long term for impacts from noise and dust Constant for impacts from the turbine operation	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unidentified historic and cultural resources	Adverse effects on resources through a loss or diminishment of integrity	Low	Long Term	Probable	Local	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of an Inadvertent Discovery Plan	None identified
Historic and Cultural Resources (Section 4.9)	Traditional Cultural Properties	Noise, vibration, visual interferences, and restriction of access .	High	Long term for impacts from noise and dust Constant for impacts from turbine operation and security measures	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties and resources.
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	The wind turbines, and comprehensive Project, would dominate views from many KOP locations, and the landscape would appear strongly altered.	High	Long Term	Unavoidable	Regional	**VIS-1:** Relocate turbines located within the foreground distance. **VIS-2:** No advertising, cell antennas, commercial messages, or symbols placed on wind turbines. **VIS-3:** Maintain clean nacelles and towers.	Significant for Visual Aspects.

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Visual Aspects, Light and Glare (Section 4.10)	Shadow Flicker	Wind turbines would create shadow flicker that would impact Project participants.	Medium	Long Term	Probable	Confined	**SF-1:** The Applicant would attempt to avoid, minimize. and mitigate shadow flicker at nearby residences. **SF-2:** The Applicant would set up a complaint resolution procedure.	None identified
Visual Aspects, Light and Glare (Section 4.10)	Light	Lighting for security purposes and to conform with FAA requirements would be visible outside the Lease Boundary but would have limited effect in terms of light trespass and sky glow degradation.	Low	Long Term	Unavoidable	Local	**LIG-1:** Use LEED-certified building exterior(s) and security lighting.	None identified
Visual Aspects, Light and Glare (Section 4.10)	Glare	Solar panels at all modeled receptors and vehicular routes are predicted to not experience glare as a result of Project operations; glare would not exceed FAA notice criteria, and a formal filing is not necessary.	Low	Long Term	Unavoidable	Confined	No mitigation identified	None identified
Noise and Vibration (Section 4.11)	Noise and Vibration (Operational Noise)	Noise would be generated by the operation of wind turbines, inverters, transformers, and the corona effect.	Medium	Long Term	Unavoidable	Local	**N-5:** Establish a noise complaint resolution procedure similar construction **N-6:** *Maintain operation of the "noise hot line" for one year of Project operation*	None identified
Recreation (Section 4.12)	Recreation – Use	Operation of the comprehensive Project would result in a high impact due to the restriction of access to public land and recreational activities that occur on public land near the Project. The impact would be long term for the duration of the life of the Project, unavoidable, and local.	High	Long Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails) **R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Recreation (Section 4.12)	Recreation – Recreational Experience	Impacts on noise receptors would be limited, while visual impacts would occur regionally.	Low	Long Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest	None identified

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Recreation (Section 4.12)	Recreation – Public Health and Safety	The Project's potential to affect the health and safety of recreationists using the area for paragliding and hang gliding would results in a medium impact during the life of the Project. Impacts on recreationists would occur beyond neighboring receptors.	Medium	Long Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	Significant for paragliding and hang gliding public health and safety
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Lithium-ion batteries used for the BESS may pose a risk of fire and explosion during operation because they may overheat, but the BESS would include a fire suppression system.	Medium	Temporary	Feasible	Limited	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified
Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	Indirect impacts if a fire were to occur during operation of the turbines and substation could include smoke or haze, and a potential reduction in emergency response services.	Low	Temporary	Unlikely	Regional	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified
Public Health and Safety (Section 4.13)	Release of Hazardous Materials	Project elements include small amounts of oil and batteries, but a release is unlikely to occur during operations.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified
Transportation (Section 4.14)	Vehicular Traffic	Operation of the solar arrays may require water trucks to deliver wash water to clean the panels. A decrease in level of service is not expected, nor is roadway safety expected to decrease.	Low	Long Term	Probable	Local	**TR-2:** Operation Lifesaver safety presentation and training	None identified
Public Services and Utilities (Section 4.15)	Wastewater (Level of Service and Safety)	Wastewater from the O&M facilities would be discharged to an on-site septic system. It is anticipated that the operations stage would use less than 5,000 gallons of water per day and that wastewater would be generated from kitchen and bathroom use.	Low	Long Term	Unavoidable	Local	**ENR-5:** Capture and recycle wash water	None identified
Public Services and Utilities (Section 4.15)	Municipal Solid Waste (Level of Service)	Operation of the Project is expected to generate approximately one or two dumpsters of waste per week at the O&M facilities.	Low	Constant	Unavoidable	Local to Regional (depending on location of landfill)	**PSU-1:** Use of a licensed waste disposal facility	None identified
Socioeconomics (Section 4.16)	Economic Environment (Housing Availability)	The Proposed Action would generate or support up to 58 FTEs. A team of 16 to 20 personnel would be employed to operate and maintain Project components. As reported in the 2019 American Community Survey 5-Year Estimate, rental vacancy rate in Benton County was 5.1%, with 1,660 units available for rent.	Negligible	Long Term	Feasible	Regional	No mitigation identified	None identified

Table ES-3b: Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action

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Socioeconomics (Section 4.16)	Environmental Justice (People of Color and Low-Income Populations)	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Long Term	Feasible	Confined	No mitigation identified	None identified

Notes:
[a] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[b] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[c] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS = battery energy storage system; dBA = A-weighted decibels; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; FAA = Federal Aviation Administration; FTE = full-time equivalent KOP = key observation point; LEED = Leadership in Energy and Environmental Design; mph = miles per hour; O&M = operations and maintenance; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife; ZOI = zone of influence

Table ES-3c

Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

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Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Earth Resources (Section 4.2)	Geology (Landscape)	The likelihood of a foundation removal encountering bedrock is low. If bedrock were to be impacted during the decommissioning stage, then it would likely have already been encountered during the construction stage.	Low	Temporary	Probable	Limited	No mitigation identified	None identified
Earth Resources (Section 4.2)	Soils (Landscape)	Decommissioning activities associated with the Project could impact and disturb the soil profile, due to excavating foundations and utilities, removing unsealed areas, restoring the original ground profile, and rehabilitating vegetation.	Low	Short Term	Unavoidable	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Topography (Landscape)	The Applicant would restore the original topographic profile in areas of previous development.	Low	Short Term	Probable	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Earthquakes (Safety)	Prolonged earthquake ground shaking could cause minor damage to infrastructure if the intensity and duration of the shaking exceed structural seismic design levels.	Negligible	Temporary	Feasible	Confined	No mitigation identified	None identified

Notes:
Table continues below, notes apply to remainder of table
[a] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[b] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[c] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
EFSEC = Energy Facility Site Evaluation Council; mph = miles per hour; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Earth Resources (Section 4.2)	Landslide Hazards and Ground Instability (Safety)	Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Volcanic Activity (Safety)	Hazards from ashfall to decommissioning activities would include the following: ▪ Accumulation of ash on structures ▪ Clogging of electronics, machinery, and filters ▪ Suspension of abrasive fine particles in air and water ▪ Accumulation of ash on transportation routes and vegetation	Negligible	Temporary	Unlikely	Confined	No mitigation identified	None identified
Air Quality (Section 4.3)	Air Quality (Quantity of Emissions, Compatibility with Applicable Rules, Regulations, and Plans, Potential Exposure to Sensitive Receptors)	Adverse impacts on air quality may occur during decommissioning from $PM_{2.5}$, PM_{10}, and fugitive dust	Low	Short Term	Probable	Confined	**A-1:** Limit speeds to less than 15 mph on dirt roads.	None identified
Water Resources (Section 4.4)	Physical Disturbance	Project decommissioning would result in physical disturbance that could impact surface water and wetlands, runoff and absorption capacity, floodplains, and groundwater resources.	Low	Short Term	Unavoidable	Confined	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-6:** Wetland SWPPP.	None identified
Water Resources (Section 4.4)	Change in Water Quality	Project decommissioning would require temporary disturbance, which could impact water quality.	Low	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-5:** Employee Training. **W-6:** Wetland SWPPP. **W-8:** Spill Response Equipment.	None identified

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

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Water Resources (Section 4.4)	Change in Hydrology	Project decommissioning would require temporary disturbance to some ephemeral and intermittent streams but would restore the disturbance areas following decommissioning.	Low	Short Term	Unlikely	Limited	**W-3:** Check Dams.	None identified
Water Resources (Section 4.4)	Introduction of Hazardous Substances	Project decommissioning could result in the introduction of hazardous substances to water resources.	Low	Temporary	Unlikely	Local	**W-5:** Employee Training. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Impacts on Public Water Supply	Project decommissioning could result in impacts on public water supply.	Low	Temporary	Unlikely	Regional	**W-9:** Minimize Water Use.	None identified
Vegetation (Section 4.5)[32]	Loss of Extent of Priority Habitat – Temporary Disturbance	Decommissioning of the Project would require temporary disturbance areas to remove Project components, which would result in direct loss of WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent Other Habitat – Temporary Disturbance	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Low	Short Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan	None identified

[32] Blue highlight identifies Impacts of Medium and High magnitude.

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Vegetation (Section 4.5)	Loss of Extent Special Status Plant Species	Site clearing associated with decommissioning of the Project would result in direct loss of populations of special status plant species or their habitat.	Low	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Habitat Degradation	Project decommissioning could result in habitat degradation from the introduction of hazardous material, surface runoff, introduction or spread of invasive plant or noxious weeds, and the deposition of dust.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Project decommissioning could result in habitat fragmentation from fire.	Low	Long Term	Feasible	Local	**Veg-6:** Decommissioning Legislated Requirements **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Wildlife and Habitat (Section 4.6)	Habitat loss	The Project would result in temporary loss of habitat during decommissioning. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation.	Negligible	Short Term	Unavoidable	Local	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-1:** Tree Avoidance. **Veg-7:** Detailed Site Restoration Plan.	None identified

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning.	Negligible	Short Term	Feasible	Confined	**Wild-1**: Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3**: Review USFWS eagle mortality consultation. **Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit activity disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Wild-8**: Establish buffers around raptor nests.	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: striped whipsnake and sagebrush lizard	Ground disturbance and machinery use during Project decommissioning could result in mortality of striped whipsnake and sagebrush lizard.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning **Veg-7:** Detailed Site Restoration Plan. **Spec-1:** Implement striped whipsnake and sagebrush lizard–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: American white pelican	Decommissioning of the Project may disturb American white pelicans moving over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Hab-4:** Develop TAC. **Spec-2**: Implement American white pelican–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: bald eagle	Decommissioning of the Project could disturb bald eagles, resulting in avoidance of the Project site.	Negligible	Short Term	Feasible	Confined	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3**: Review USFWS eagle mortality consultation. **Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Spec-3:** Implement eagle-specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: burrowing owl	Decommissioning may result in mortality from machinery operation over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-1**: Review 2-year raptor and bat monitoring program. **Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Wild-7:** Schedule activity during daylight hours. **Wild-8**: Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-4**: Implement burrowing owl–specific mitigation.	None identified

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Decommissioning may result in mortality from machinery operation over the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-1**: Review 2-year raptor and bat monitoring program. **Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Wild-8**: Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-5**: Ferruginous hawk–specific mitigation	None identified
Wildlife and Habitat (Section 4.6)	Special status species: golden eagle	Decommissioning of the Project could disturb golden eagles, resulting in avoidance of the Project site, though golden eagle nesting has not been reported within 10 miles of the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3**: Review USFWS eagle mortality consultation. **Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Spec-3:** Implement eagle-specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: great blue heron and sandhill crane	Decommissioning activities may disturb birds flying over the Lease Boundary, resulting in bird flight paths being diverted around the area.	Negligible	Short Term	Feasible	Confined	**Wild-1**: Review 2-year raptor and bat monitoring program. **Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Hab-4:** Develop TAC. **Spec-6**: Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	Decommissioning may disturb birds foraging and nesting within the Lease Boundary. Machinery could result in mortality of birds and destruction of nests.	Negligible	Short Term	Feasible	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	Disturbance from decommissioning activities may result in disturbance to prairie falcons.	Negligible	Short Term	Unlikely	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Wild-8**: Establish buffers around raptor nests. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-8**: Implement prairie falcon–specific mitigation.	None identified

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Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Wildlife and Habitat (Section 4.6)	Special status species: ring-necked pheasant	Disturbance from decommissioning activities may result in indirect habitat loss. Access roads may result in collisions with ring-necked pheasants.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning **Veg-7:** Detailed Site Restoration Plan. **Spec-9**: Implement ring-necked pheasant–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: sagebrush sparrow and sage thrasher	Decommissioning may disturb birds foraging and nesting within the Lease Boundary. Machinery could result in mortality of birds and destruction of nests.	Negligible	Short Term	Feasible	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Decommissioning may disturb tundra swans flying over and foraging within the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-1**: Review 2-year raptor and bat monitoring program. **Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Hab-4:** Develop TAC. **Spec-6**: Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified

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Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Wildlife and Habitat (Section 4.6)	Special status species: Vaux's swift	Decommissioning of the Project could disturb Vaux's swifts in flight over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Disturbance from decommissioning activities may result in indirect habitat loss. Access roads may result in collisions with jackrabbits.	Negligible	Short Term	Feasible	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas **Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning **Veg-7:** Detailed Site Restoration Plan. **Spec-10:** Implement black and white-tailed jackrabbit–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	Decommissioning activities could disturb Townsend's big-eared bat foraging within the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-7:** Schedule construction during daylight hours. **Hab-4:** Develop TAC. **Spec-11:** Implement Townsend's big-eared bat–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's ground squirrel	Mortality may occur during decommissioning and along access roads.	Negligible	Short Term	Feasible	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-12:** Implement Townsend's ground squirrel–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	Decommissioning is predicted to result in indirect habitat loss. Increased traffic on existing and new access roads may result in pronghorn antelope mortality.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-13:** Implement pronghorn antelope–specific mitigation.	None identified
Energy (Section 4.7)	Consumption of Raw Materials and Commodities	Energy consumption, predominantly in the form of gasoline, diesel fuel, and electricity, would be required to operate equipment such as cranes, trucks, tools, and vehicles used to dismantle and remove most Project facilities and reclaim disturbed areas. Backfilling void spaces created by the removal of foundations would require construction aggregate.	Low	Short Term	Unavoidable	Local	**ENR-6:** *Recycle all components of the Project*	None identified
Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Similar to Turbine Option 1 and solar arrays	Low (decreased productivity) Medium (operational changes)	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** *Arrange for the removal of livestock*	None identified
Land and Shoreline Use (Section 4.8)	Wineries and agritourism (Profitability)	Wineries and agri-tourism businesses Wine industry and wine tasting tourism could be impacted from changes in general environmental settings through potential changes in viewing opportunities from wineries that are in proximity to the Project.	Low	Short Term	Feasible	Local	No mitigation identified	None identified
Historic and Cultural Resources (Section 4.9)	Precontact Archaeological resources; DAHP-issued permit required prior to disturbance - OR - *Avoidance requested and recommended*	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	High	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

Section	Topic	Description of Impact[a]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[b]	Significant Unavoidable Adverse Impacts[c]
Historic and Cultural Resources (Section 4.9)	Historic-period archaeological isolates and sites determined not eligible for the NRHP	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural resources determined not eligible for the NRHP	Adverse effects on resources through a loss or diminishment of integrity.	Low	Short-term	Feasible	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural resources determined not eligible for the NRHP	Physical impacts	Low	Constant	Unlikely	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unevaluated archaeological historic-period sites	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Medium	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Adverse effects on resources through a loss or diminishment of integrity	Low	Short term	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Physical impacts	High	Constant	Unlikely	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unidentified historic and cultural resources	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity.	High	Constant	Probable	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Traditional Cultural Properties	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference.	High	Short term	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties and resources
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	Activities would attract attention and would modify the existing landscape setting. Due to the additive effect of the different Project features, these impacts would affect a larger area.	Medium	Short Term	Probable	Regional	No mitigation identified	None identified

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

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Visual Aspects, Light and Glare (Section 4.10)	Light	Activities would be completed mainly during daytime hours without the need for nighttime lighting.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified
Visual Aspects, Light and Glare (Section 4.10)	Glare	Activities could generate glare from construction equipment or solar panels.	Low	Temporary	Feasible	Confined	No mitigation identified	None identified
Noise and Vibration (Section 4.11)	Noise and Vibration (Noise from Decommissioning Equipment)	Most noise sensitive receptors would receive sound levels below 55 dBA during construction, with the potential to be up to 10 dBA over baseline. One noise sensitive receptor could receive sound levels at 55 dBA during construction of one turbine.	Medium	Temporary	Probable	Limited	**N1:** Avoid laydown and equipment storage/parking areas near NSRs **N2:** Limit the use of noise-generating equipment to daytime hours (7 a.m. to 10 p.m.) and loud equipment to working hours (7 a.m. to 6 p.m.) **N-3:** Monitor noise during nighttime decommissioning operations (10 p.m. to 7 a.m.) with the potential to impact NSRs **N-4:** Update the Applicant's noise complaint resolution procedure to include contacting and reporting details	None identified
Recreation (Section 4.12)	Recreation – Use	Decommissioning of the comprehensive Project would result in a high impact due to the restriction of access to public land and recreational activities that occur on public land near the Project. The impact would be short term for the duration of decommissioning, unavoidable, and local.	High	Short Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails) **R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Recreation (Section 4.12)	Recreation – Recreational Experience	Indirect impacts related to visual resources and noise could occur at recreation sites. Impacts on noise receptors would occur locally, while visual impacts would occur at a regional spatial extent.	High	Short Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest	None identified
Recreation (Section 4.12)	Recreation – Public Health and Safety	The Project's potential to affect the health and safety of recreationists using the area for paragliding, hang gliding, or biking would result in a medium impact.	Medium	Short Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

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Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during decommissioning. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	If a fire were to occur during turbine decommissioning, indirect impacts could include smoke or haze, and a potential reduction in emergency response services.	Medium	Temporary	Feasible	Regional	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Release of Hazardous Materials	Project elements include small amounts of oil, which could be released during decommissioning.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified
Transportation (Section 4.14)	Vehicular Traffic	Decommissioning would require the removal and transportation of the dismantled pieces of the turbines, expected to be smaller than the pieces that arrived during the Construction Stage. The increase in traffic volumes is not expected to decrease level of service or cause a decline in roadway safety.	Low	Short Term	Unavoidable	Regional	**TR-1:** Daily transport communication, including emergency numbers. **TR-2:** Operation Lifesaver safety presentation and training. **TR-3:** Traffic Analysis. **TR-4:** Railroad crossing and grade change survey. **TR-5:** Traffic and Safety Management Plan. **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified
Public Services and Utilities (Section 4.15)	Wastewater (Level of Service and Safety)	The amount of wastewater produced from the temporary workers on site, while measurable, would not impact the ability of the local utility to treat the community's sewage.	Low	Short Term	Unavoidable	Local	No mitigation identified	None identified
Public Services and Utilities (Section 4.15)	Municipal Solid Waste (Level of Service)	After dismantling of the facility, high-value components would be removed for scrap value. The remaining materials would be reduced to transportable size and removed from the site for disposal. Existing facilities would maintain capacity to receive the Project's non-recyclable waste and continue to serve their communities.	Low	Constant	Unavoidable	Local to Regional	**ENR-7**: Recycle all applicable components **PSU-1***: Use of a licensed waste disposal facility*	None identified

Table ES-3c: Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action

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Socioeconomics (Section 4.16)	Economic Environment (Housing Availability)	The majority of construction workers would be sourced locally; however, the Project's construction would require temporary and short-term relocation of construction workers into the region.	Negligible	Temporary to Short Term	Feasible	Regional	**Socio-ec-1:** Updated housing analysis to confirm temporary or short-term availability	None identified
Socioeconomics (Section 4.16)	General Welfare and Social Conditions (Wellbeing)	Decommissioning of the Project would restore property tax revenues for Benton County and the Tax Area to pre-Project conditions as the Project's added value would be removed from the parcels that make up the Lease Boundary's valuation. For example, smaller collections would impact operational budgets for schools, school districts, and fire stations within Benton County and the Tax Area.	Medium	Short Term	Feasible	Regional	No mitigation identified	None identified
Socioeconomics (Section 4.16)	Environmental Justice (People of color and Low-Income Populations)	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Temporary to Short Term	Feasible	Regional	No mitigation identified	None identified

Notes:
[a] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[b] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[c] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
EFSEC = Energy Facility Site Evaluation Council; mph = miles per hour; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter

Table ES-4a

Summary of Potential Impacts by Component during Construction of the Proposed Action

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Table ES-4a: Summary of Potential Impacts by Component during Construction of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Earth Resources (Section 4.2)	Soils (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	The disturbance to natural soil profiles could result in a temporary increase in localized soil erosion. These activities are likely to include site clearing, excavation, and backfilling. The construction and erection of turbine tower foundations would disturb soil resources as the contractor excavates unsuitable material from the Project area.	Low	Short term	Unavoidable	Confined	**Geo-1:** Avoid construction during wet periods **A-1:** Limit traffic speeds **Veg-7:** Detailed Site Restoration Plan **W-2:** Minimize work in heavy rain **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Topography (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction activities that would impact topography include excavation, grading, and cut-and-fill-slope development. Limited grading and/or placement of additional fill may be needed to obtain necessary grades for access roads, building foundations, and leveling the ground. Surface disturbance from construction-related activities would impact topography around each turbine.	Low	Short term	Unavoidable	Confined	**Geo-1:** Avoid construction during wet periods **A-1:** Limit traffic speeds **LSU-4:** Restoration of temporary disturbance to preconstruction status	None identified

Notes:
Table continues below, notes apply to remainder of table
[a] Components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; ASC = Application for Site Certification; BESS = battery energy storage system; BMP = best management practice; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; EIS = Environmental Impact Statement; NRHP = National Register of Historic Places; SWPPP = stormwater pollution prevention plan; TAC = Technical Advisory Committee; Tribes = Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Wanapum Tribe; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

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Earth Resources (Section 4.2)	Landslide Hazards and Ground Instability (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	The Project site includes areas susceptible to landslides and bluff failures. Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Geo-1:** Avoid construction during wet periods **Veg-7:** Detailed Site Restoration Plan **W-2:** Minimize work in heavy rain **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Water Resources (Section 4.4)	Physical Disturbance	Turbine Option 1 Turbine Option 2	Project construction would require temporary and permanent disturbance, which could impact surface water and wetlands, surface runoff/absorption, floodplains, and groundwater.	Low	Short Term (for temporary disturbance) Long Term (for permanent disturbance)	Unavoidable	Confined	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-4:** Culvert Installation. BMPs. **W-6:** Wetland SWPPP. **W-7:** Clear-span 100-Year Floodplain. **W-11:** Concrete Batch Plant to Avoid Streams	None identified
Water Resources (Section 4.4)	Physical Disturbance	Solar Arrays	Project construction would require temporary and permanent disturbance, which could impact surface water and wetlands, surface runoff/absorption, floodplains, and groundwater.	Low	Short Term	Unavoidable	Confined	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-4:** Culvert Installation BMPs. **W-6:** Wetland SWPPP. **W-7:** Clear-span 100-Year Floodplain.	None identified
Water Resources (Section 4.4)	Physical Disturbance	BESS Substations	Project construction would require temporary and permanent disturbance, which could impact surface water and wetlands, surface runoff/absorption, floodplains, and groundwater.	Low	Short Term (for temporary disturbance) Long Term (for permanent disturbance)	Unavoidable	Limited	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-6:** Wetland SWPPP.	None identified

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Water Resources (Section 4.4)	Change in Water Quality	Turbine Option 1 Turbine Option 2	Project construction could result in a change to water quality of waterways that intersect or are located adjacent to Project construction activities.	Low	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-5** Employee Training. **W-6:** Wetland SWPPP. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Change in Water Quality	Solar Arrays	Project construction could result in a change to water quality of waterways adjacent to Project construction activities.	Negligible	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-5:** Employee Training. **W-6:** Wetland SWPPP. **W-8:** Spill Response Equipment. **W-11:** Concrete Batch Plant to Avoid Streams	None identified
Water Resources (Section 4.4)	Change in Hydrology – Temporary Disturbance	Turbine Option 1 Turbine Option 2	Temporary disturbance from Project construction within ephemeral and intermittent streams could result in changes to the hydrology of waterways.	Low	Short Term	Unlikely	Limited	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-4:** Culvert Installation BMPs.	None identified
Water Resources (Section 4.4)	Change in Hydrology – Permanent Disturbance	Turbine Option 1 Turbine Option 2	Project construction would require a culvert installation on one intermittent stream that could result in changes to the hydrology of the stream.	Low	Long Term	Unavoidable	Limited	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-4:** Culvert Installation BMPs.	None identified
Water Resources (Section 4.4)	Introduction of Hazardous Substances	Turbine Option 1 Turbine Option 2	Project construction could result in the introduction of hazardous substances that could impact surface water and wetlands, floodplains, and groundwater.	Low	Temporary	Unlikely	Local	**W-7:** Employee Training. **W-8:** Spill Response Equipment.	None identified

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Water Resources (Section 4.4)	Introduction of Hazardous Substances	Solar Arrays BESS Substations	Project construction could result in the introduction of hazardous substances that could impact surface water and wetlands, floodplains, and groundwater.	Negligible	Temporary	Unlikely	Limited	**W-3:** Concrete Wash-out Area. **W-5:** Employee Training **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Public Water Supply	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Project construction activities would rely on water sourced from local public facilities, local private irrigators, and/or collector wells fed from regional aquifers.	Low	Temporary	Feasible	Regional	**W-9:** Minimize Water Use.	None identified
Vegetation (Section 4.5)[33]	Loss of Extent of Priority Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified

[33] Blue highlight identifies Impacts of Medium and High magnitude.

Table ES-4a: Summary of Potential Impacts by Component during Construction of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Temporary Disturbance	East Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Medium	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Temporary Disturbance	Sellards Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Low	Long Term	Feasible	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report and Offset Calculation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified

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Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Temporary Disturbance	County Well Solar Field BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Negligible	Long Term	Unlikely	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat - Permanent Disturbance	Turbine Option 1 Turbine Option 2	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Low	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified

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Vegetation (Section 4.5)	Loss of Extent of Priority Habitat - Permanent Disturbance	East Solar Field	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Permanent Disturbance	County Well Solar Field Sellards Solar Field BESS Substations	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Negligible	Long Term	Unlikely	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent Other Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Low	Short Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified
Vegetation (Section 4.5)	Loss of Extent Other Habitat – Temporary Disturbance	Solar Arrays BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Negligible	Short Term	Unavoidable	Limited	**Veg-1**: Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified

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Vegetation (Section 4.5)	Loss of Extent of Other Habitat – Permanent Disturbance	East Solar Field	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with other habitat.	Low	Long Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified
Vegetation (Section 4.5)	Loss of Extent of Other Habitat – Permanent Disturbance	Turbine Option 1 Turbine Option 2 County Well Solar Field Sellards Solar Field BESS Substations	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with other habitat.	Negligible	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified
Vegetation (Section 4.5)	Loss of Extent of Special Status Plant Species	Turbine Option 1 Turbine Option 2	Site clearing associated with the construction of the Project would result in direct loss of populations of special status plant species or their habitat.	Medium	Constant	Feasible	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent of Special Status Plant Species	East Solar Field	Site clearing associated with the construction of the Project would result in direct loss of populations of special status plant species or their habitat	Medium	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified

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Vegetation (Section 4.5)	Loss of Extent of Special Status Plant Species	Sellards Solar Field	Site clearing associated with construction of the Project would result in direct loss of populations of special status plant species or their habitat.	Low	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent of Special Status Plant Species	County Well Solar Field BESS Substations	Site clearing associated with construction of the Project would result in direct loss of populations of special status plant species or their habitat.	Negligible	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Habitat Degradation	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction activities could result in habitat degradation from introduction of hazardous material, surface runoff, introduction and spread of invasive plants or noxious weeds, and deposition of dust.	Low	Long Term	Feasible	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Turbine Option 1 Turbine Option 2 BESS	Construction activities could result in habitat fragmentation from fire.	Low	Long Term	Feasible	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified

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Vegetation (Section 4.5)	Habitat Fragmentation	Solar Arrays BESS Substations	Construction activities could result in habitat fragmentation from fire.	Low	Long Term	Unlikely	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified
Wildlife and Habitat (Section 4.6)	Habitat Loss	Turbine Option 1 Turbine Option 2	The Project would result in the direct loss of habitat through construction of the Wind Energy Micrositing Corridor and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.	Medium	Short Term for temporary disturbances (e.g., construction laydown areas) Constant for permanent footprint loss (e.g., turbine footprint)	Unavoidable	Local	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance.	None identified
Wildlife and Habitat (Section 4.6)	Habitat Loss	Solar Arrays	The Project would result in the direct loss of habitat, including modified habitat, through construction of the solar arrays and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.	Medium	Short Term for temporary disturbances (e.g., construction laydown areas) and modified habitat under the solar fields. Constant for permanent footprint loss.	Unavoidable	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance.	None identified

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Wildlife and Habitat (Section 4.6)	Habitat Loss	BESS Substations	The Project would result in the direct loss of habitat through construction of the BESS, substations, and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.	Low	Short Term for temporary disturbances (e.g., construction laydown areas) Long Term for permanent footprint loss.	Unavoidable	Limited	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance.	None identified
Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	Turbine Option 1 Turbine Option 2	The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works. Wildlife-vehicle collisions may occur during Project construction due to increased traffic.	Low	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified

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Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	Solar Arrays	The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works. Wildlife-vehicle collisions may occur during Project construction due to increased traffic.	Low	Short Term	Feasible	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing to avoid nesting season and mitigation of nesting birds. **Hab-4:** Develop TAC.	None identified

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Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	BESS Substations	The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works. Wildlife-vehicle collisions may occur during Project construction due to increased traffic.	Negligible	Short Term	Feasible	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC.	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	Turbine Option 1 Turbine Option 2	Turbines, power lines, roadways, and other linear infrastructure could create barriers to wildlife movement and fragment habitat. Barriers and fragmentation created during construction would predominantly remain through operation.	Low	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified

Table ES-4a: Summary of Potential Impacts by Component during Construction of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	Solar Arrays	Solar arrays may impact wildlife movement and fragment habitat by bisecting movement corridors. Solar arrays would be fenced, which is expected to create a barrier to movement of larger wildlife around the arrays.	Low	Long Term	Unavoidable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	BESS Substations	BESS and substations may create barriers to wildlife movement in the adjacent area.	Negligible	Long Term	Unavoidable	Limited	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: striped whipsnake and sagebrush lizard	Turbine Option 1 Turbine Option 2 Solar Array BESS Substations	Impacts on shrub and shrub-steppe habitat may result in loss of suitable reptile habitat. Mortality of reptile species could occur during construction from heavy machinery and land clearing and grubbing.	Low	Constant	Feasible	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-1:** Implement striped whipsnake and sagebrush lizard–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: American white pelican	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project may disturb American white pelicans moving over the Lease Boundary.	Negligible	Short Term	Unlikely	Limited	**Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-2:** Implement American white pelican–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: bald eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project could disturb bald eagles, resulting in avoidance of the Project Site.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction. disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-1:** Tree Avoidance. **Spec-3:** Implement eagle-specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: burrowing owl	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction may result in direct and indirect habitat loss and the destruction of burrows (active, inactive, and potential). Mortality may occur during vegetation and ground-disturbing works.	Medium	Constant (habitat loss) Short Term (disturbance, mortality)	Unavoidable (Habitat loss) Probable (disturbance) Feasible (mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-4:** Implement burrowing owl–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Turbine Option 1 Turbine Option 2 BESS Substations	Construction of turbines and associated roads and power lines may result in the direct and indirect loss of habitat in core and range ferruginous hawk habitat. Nesting success could be impacted by construction activities near the nest or activities change prey abundance.	High	Constant (habitat loss) Short Term (disturbance)	Unavoidable (habitat loss) Probable (disturbance)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-5:** Implement ferruginous hawk–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Solar Arrays	Three historic nesting locations would be directly impacted at the East Solar Field.	Medium	Constant	Unavoidable	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-5:** Implement ferruginous hawk–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: golden eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project could disturb golden eagles, resulting in avoidance of the Project site, though golden eagle nesting has not been reported within 10 miles of the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Spec-3:** Implement eagle-specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: great blue heron and sandhill crane	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction may disturb birds flying over the Lease Boundary, resulting in bird flight paths being diverted around the area. Construction may result in the loss of foraging habitat.	Negligible	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Feasible (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction may result in direct and indirect (disturbance) habitat loss. Mortality may occur from interactions with machinery and destruction of nests.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on Final Project layout and design. **Hab-8:** Mitigation options **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project is predicted to result in the direct loss of suitable foraging habitat for prairie falcon. Disturbance from construction activities may result in disturbance to prairie falcons.	Medium	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree avoidance. **Spec-8:** Implement prairie falcon–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: ring-necked pheasant	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project is predicted to result in the direct loss of suitable foraging habitat for ring-necked pheasant. Disturbance from construction activities may result in indirect habitat loss. Access roads may result in collisions with ring-necked pheasants.	Low	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-9:** Implement ring-necked pheasant–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: sagebrush sparrow sage thrasher	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction may result in direct and indirect habitat loss. Mortality may occur from interactions with machinery and destruction of nests.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction may result in the disturbance and loss of suitable foraging habitat and disruption of birds flying over the Lease Boundary.	Low	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Feasible (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: Vaux's swift	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project could disturb Vaux's swift in flight over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species**:** black-tailed jackrabbit white-tailed jackrabbit	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project is predicted to result in the direct loss of suitable habitat for jackrabbit. Disturbance from construction activities may result in indirect habitat loss. Access roads may result in collisions with jackrabbits, barriers to movement, and increased fragmentation.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3**: Temporary laydown areas **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-10:** Implement black and white-tailed jackrabbit–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction activities could disturb Townsend's big-eared bat foraging within the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-7:** Schedule construction during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: Townsend's ground squirrel	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction of the Project and associated access roads are predicted to result in the loss of suitable Townsend's ground squirrel habitat and destruction of colonies. Mortality may occur during construction work near colonies and along access roads.	Medium	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-12:** Implement Townsend's ground squirrel–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Construction is predicted to result in direct loss of pronghorn antelope habitat. Activity associated with construction may result in indirect habitat loss. Increased traffic on existing and new access roads may result in pronghorn antelope mortality	Medium	Constant (habitat loss) Short Term (construction disturbance)	Unavoidable (habitat loss) Probable (disturbance)	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-13:** Implement pronghorn antelope–specific mitigation.	None identified
Energy (Section 4.7)	Consumption of Raw Materials and Commodities	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	The installation of a turbine would require steel for support structures, fuel for construction equipment and vehicles, and concrete for foundations. The manufacturing of concrete within the Project vicinity would require water sourced locally.	Low	Short Term (for the entire component)	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement	None identified

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Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Turbine Option 1 Turbine Option 2 BESS Substations	It may be necessary to remove cattle from areas where blasting or heavy equipment operations take place. Project construction could delay agricultural activities for short durations on adjacent properties. Reduced access to fields within the Lease Boundary could impact existing dryland agricultural management programs. Limited but measurable acreage would be taken out of wheat production.	Negligible (farm plan modifications) Low (decreased productivity)	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock	None identified
Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Solar Arrays	It may be necessary to remove cattle from areas where heavy equipment operations take place. Project construction could delay agricultural activities for short durations on adjacent properties. Reduced access to fields within the Lease Boundary could impact existing dryland agricultural management programs. Temporarily and permanently impacted dryland agricultural acreage from solar array construction would equate to approximately 0.3% of the state's annual wheat production.	Low	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock	None identified
Historic and Cultural Resources (Section 4.9)	Precontact Archaeological resources; DAHP-issued permit required prior to disturbance - OR - Avoidance requested and recommended	Turbine Option 1 Turbine Option 2	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	High	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Historic-period archaeological isolates and sites determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified

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Historic and Cultural Resources (Section 4.9)	Architectural resources determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unevaluated archaeological historic-period sites	Turbine Option 1 Turbine Option 2 Solar Arrays	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Medium	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Adverse effects on resources through a loss or diminishment of integrity	Low	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Physical impacts	High	Constant	Unlikely	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unidentified historic and cultural resources	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity.	High	Constant	Feasible	Local	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Traditional Cultural Properties	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference.	High	Short term for impacts from noise, dust, and use of large equipment and heavy machinery. Constant for impacts from construction of turbines and fencing and the acquisition of land.	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties.

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Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	Turbine Option 1 Turbine Option 2	Activities would attract attention and would modify the localized existing landscape setting.	Medium	Short Term	Probable	Local	No mitigation identified	None identified
Recreation (Section 4.12)	Recreation – Use	Turbine Option 1 Turbine Option 2	Construction of the turbines would limit recreational activities that occur on public land in areas near construction, as well as impede cyclists' use of established routes during the transportation of equipment and materials.	Medium	Short Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails).	None identified
Recreation (Section 4.12)	Recreation – Use	Solar Arrays	Construction of the Sellards Solar Field would restrict access to a parcel of DNR-administered land within the Lease Boundary resulting in a high impact.	High	Long Term	Unavoidable	Limited	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails).	None identified
Recreation (Section 4.12)	Recreation – Recreational Experience	Turbine Option 1 Turbine Option 2 Solar Arrays	Indirect impacts related to visual resources and noise could occur at recreation sites.	High	Long Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest.	None identified
Recreation (Section 4.12)	Recreation – Public Health and Safety	Turbine Option 1 Turbine Option 2 Solar Arrays	The Project's potential to affect the health and safety of recreationists using the area for paragliding, hang gliding, or biking would result in a medium impact.	Medium	Long Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationists safe.	None identified
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Turbine Option 1 Turbine Option 2	Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. For instance, combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during construction. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Solar Arrays BESS Substations	Fire resulting from solar array, substation, and BESS construction is unlikely, but wildfire risk in the area is considered high.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified

Table ES-4a: Summary of Potential Impacts by Component during Construction of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	Turbine Option 1 Turbine Option 2	Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. For instance, combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during construction. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Regional	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	Solar Arrays BESS Substations	If a fire were to occur during construction of the solar arrays, substation, or BESS, indirect impacts could include smoke or haze, and a potential reduction in emergency response services.	Medium	Temporary	Unlikely	Regional	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Public Health and Safety (Hazardous Materials Release)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Hazardous materials, including diesel fuel, lubricating oils, hydraulic fluid, paints, and solvents would be used and stored on site. Spill kits would be maintained, minimizing the risk of a release if a spill were to occur.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified
Transportation (Section 4.14)	Vehicular Traffic	Turbine Option 1 Turbine Option 2	Traffic volumes would increase measurably during transportation of material and equipment for the construction of the turbines. The potential for traffic volumes and slower, oversized roads would likely decrease level of service for intersections near the Lease Boundary and highways/ freeways. The increase in traffic volumes and the size of construction material may decrease roadway safety at intersections near the Project or on railroad crossings.	Medium	Short Term	Unavoidable	Regional	**TR-1:** Daily transport communication, including emergency numbers. **TR-2:** Operation Lifesaver safety presentation and training. **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified

Table ES-4a: Summary of Potential Impacts by Component during Construction of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Transportation (Section 4.14)	Vehicular Traffic	Solar Arrays	Traffic volumes would increase measurably during transportation of material and equipment during the construction of the solar arrays and would likely decrease level of service for intersections near the Lease Boundary. The increase in traffic volumes may decrease roadway safety at intersections near the Project or on railroad crossings.	Medium	Short Term	Unavoidable	Local	**TR-1:** Daily transport communication, including emergency numbers. **TR-2:** Operation Lifesaver safety presentation and training. **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified
Transportation (Section 4.14)	Vehicular Traffic	BESS Substations	Traffic volumes may increase, but a decrease in level of service is not expected, nor is there the potential for roadway safety to decrease.	Low	Temporary	Probable	Local	**TR-1:** Daily transport communication, including emergency numbers. **TR-2:** Operation Lifesaver safety presentation and training.	None identified
Public Services and Utilities (Section 4.15)	Municipal Solid Waste (Level of Service)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Solid waste from the Project's construction would consist of various quantities of non-hazardous construction wastes. The landfills identified in the ASC maintain substantial capacity that would be sufficient to serve the Project and the region, simultaneously.	Low	Constant	Unavoidable	Local to Regional (depending on location of landfill)	**ENR-7:** Recycle all applicable components **PSU-1:** Use of a licensed waste disposal facility	None identified
Socioeconomics (Section 4.16)	Environmental Justice (People of Color and Low-Income Populations)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Short Term	Feasible	Confined to Regional	No mitigation identified	None identified

Notes:
[a] Components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; ASC = Application for Site Certification; BESS = battery energy storage system; BMP = best management practice; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; EIS = Environmental Impact Statement; NRHP = National Register of Historic Places; SWPPP = stormwater pollution prevention plan; TAC = Technical Advisory Committee; Tribes = Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Wanapum Tribe; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

Table ES-4b

Summary of Potential Impacts by Component during Operation of the Proposed Action

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Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Earth Resources (Section 4.2)	Soils (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	It is anticipated that no new ground disturbance would occur. Access roads and cleared areas could be susceptible to increased soil erosion from a lack of stabilizing vegetation or hard cover and prior disturbance of the local soil profile. Soil erosion, because of operations, would be limited to gravel-surfaced areas, including the apron constructed around each turbine.	Low	Temporary	Feasible	Limited	**A-1:** Limit traffic speeds **Veg-7:** Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Landslide Hazards and Ground Instability (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Veg-7:** Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Water Resources (Section 4.4)	Panel Washing	Solar Arrays	Project operations would require water to wash solar array panels, which would infiltrate the surrounding ground and could impact water resources.	Negligible	Temporary	Unlikely	Confined	**W-9:** Minimize Water Use. **W-10:** Panel Washing.	None identified
Water Resources (Section 4.4)	Introduction of Hazardous Substances	Turbine Option 1 Turbine Option 2	Project operations could result in the accidental release of hazardous substances that could impact water resources.	Negligible	Temporary	Unlikely	Limited	**W-5:** Employee Training. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Impacts on Public Water Supply	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Project operations would rely on water from public water supply for operations.	Low	Temporary	Feasible	Regional	**W-9:** Minimize Water Use. **W-10:** Panel Washing.	None identified

Notes:
Tables continues below, notes apply to remainder of table
[a] Components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS = battery energy storage system; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; FAA = Federal Aviation Administration; FTE = full-time equivalent; KOP = key observation point; LEED = Leadership in Energy and Environmental Design; O&M = operations and maintenance; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife Service; ZOI = zone of influence

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vegetation (Section 4.5)	Habitat Degradation	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Project operations could result in habitat degradation from the introduction of hazardous substances, introduction and spread of noxious weeds and invasive plants, and deposition of dust.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Hab-4:** Pre-operational Technical Advisory Group	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Turbine Option 1 Turbine Option 2	Project operations could result in habitat fragmentation from edge effects and fire.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Hab-4:** Pre-operational Technical Advisory Group	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Solar Arrays BESS	Project operations could result in habitat fragmentation from edge effects and fire.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-9:** Maintenance of Solar Array Fence **Hab-4:** Pre-operational Technical Advisory Group	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Substations	Project operations could result in habitat fragmentation from edge effects and fire.	Low	Long Term	Unlikely	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-9:** Maintenance of Solar Array Fence **Hab-4:** Pre-operational Technical Advisory Group	None identified

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wildlife and Habitat (Section 4.6)[34]	Habitat loss	Turbine Option 1 Turbine Option 2	The Project would result in the direct loss of habitat through operation of the turbines and associated infrastructure. The Project may result in indirect habitat loss through degradation of habitat in ZOI created by disturbances (e.g., noise, light) from turbines and associated infrastructure.	Medium	Constant	Unavoidable	Local	**Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Veg-4:** As-built report and offset calculation.	None identified
Wildlife and Habitat (Section 4.6)	Habitat loss	Solar Arrays	The Project would result in the direct loss of habitat through operation of the solar arrays and associated infrastructure. The Project may result in indirect habitat loss through degradation of habitat in ZOI created by disturbances from solar arrays and associated infrastructure.	Medium	Constant	Unavoidable	Confined	**Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Veg-4:** As-built report and offset calculation.	None identified
Wildlife and Habitat (Section 4.6)	Habitat Loss	BESS Substations	The Project would result in the direct loss of habitat through operation of the BESS and substations. The operation of the BESS and substations may also result in indirect habitat loss through degradation of habitat in the 0.5-mile ZOI created by disturbances from these features.	Negligible	Long Term	Unavoidable	Limited	**Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Veg-4:** As-built report and offset calculation.	None identified

[34] Blue highlight identifies Impacts of Medium and High magnitude.

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	Turbine Option 1 Turbine Option 2	The Project may result in mortality of aerial species (birds and bats) through collisions with turbines, strikes with power lines, windows, and weather towers. Other sources of mortality on wildlife, including non-aerial species, include vehicle collisions and changes in food availability.	Medium	Long Term	Probable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified
Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	Solar Arrays	Bird species, particularly water-associated species, may collide with solar arrays. Mortality of other species, such as herptile, could occur depending on conditions under the solar facilities.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC.	None identified

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Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	BESS Substations	Wildlife mortality may occur due to collisions with infrastructure, including BESS and substations.	Negligible	Long Term	Unlikely	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC.	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	Turbine Option 1 Turbine Option 2	The operation of turbines, power lines, roadways, and other linear infrastructure could result in barriers to wildlife movement and fragment habitat. Barriers and fragmentation created during construction would predominantly remain through operation.	Low	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-4:** As-built report and offset calculation	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	Solar Arrays	The east solar field is situated on a movement corridor and may impact wildlife movement. Fencing around solar arrays is expected to create barriers for larger mammals. Herptiles, small mammals, and small birds are expected to be able to continue to access vegetation around the arrays through the fencing.	Low	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-4:** As-built report and offset calculation	None identified

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Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	BESS Substations	BESS and substations may create barriers to wildlife movement in the adjacent area.	Low	Long Term	Feasible	Limited	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-4:** As-built report and offset calculation	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Striped whipsnake and sagebrush lizard	Turbine Option 1 Turbine Option 2 Solar Array BESS Substations	Impacts on shrub and shrub-steppe habitat may result in loss of suitable reptile habitat. Increased road networks within the Lease Boundary could increase the risk of mortality sagebrush lizard and striped whipsnake. Roadways may create barriers to reptile movement and further fragment reptile habitat.	Low	Constant	Feasible	Confined	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-1:** Implement striped whipsnake and sagebrush lizard–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: American white pelican	Turbine Option 1 Turbine Option 2 Solar Arrays	American white pelicans have the potential for collision with turbines, and electrocution with overhead transmission lines. American white pelicans could collide with solar arrays as literature suggests water-associated birds may attempt to land on solar arrays if they are mistaken for water (lake effect).	Medium	Long Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-2:** Implement American white pelican–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: American white pelican	BESS Substations	Interactions with BESS and substations are not expected.	Negligible	Long Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-2:** Implement American white pelican–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: bald eagle	Turbine Option 1 Turbine Option 2	Bald eagles are estimated to be the 17th most likely large bird to collide with the turbines, with an estimated exposure index of 0.01. Further, turbines could create barriers to bald eagle movement over the Lease Boundary.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-3:** Implement eagle-specific mitigation.	None identified

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

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Wildlife and Habitat (Section 4.6)	Special status species: bald eagle	Solar Arrays BESS Substations	Solar arrays, BESS, substations, and other ground-based disturbances could reduce foraging habitat for bald eagles, though the Lease Boundary is not expected to provide key or important bald eagle habitat.	Negligible	Long Term	Feasible	Limited	**Wild-2**: Use wildlife-resistant trash containers. **Wild-3**: Review USFWS eagle mortality consultation. **Wild-4**: Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-3:** Implement eagle-specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: burrowing owl	Turbine Option 1 Turbine Option 2	Permanent habitat loss from turbine footprint and roads would persist throughout operation. Operation of turbines could result in indirect burrowing owl habitat loss. Burrowing owls are not expected to collide with turbines but are susceptible to road-based mortality. Further, changes in prey distribution and abundance may change foraging.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-4:** Implement burrowing owl–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: burrowing owl	Solar Arrays BESS Substations	Areas under solar arrays may continue to provide habitat for burrowing owls, depending on conditions under the arrays. Habitat altered by the BESS and substations would be lost throughout operation. Increased traffic on roads used to access solar arrays, BESS, and substructures may result in burrowing owl mortality.	Medium	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-4:** Implement burrowing owl–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Turbine Option 1 Turbine Option 2	Operation of the turbines could result in mortality due to collisions with turbines and power lines. Change in prey abundance may reduce hawk survivorship. Operation may also reduce the re-occupancy of nesting territories due to disturbance.	High	Constant	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-5:** Implement ferruginous hawk–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Solar Arrays	Solar arrays may change prey structures, resulting in impacts on adult and young survivorship.	Medium	Constant	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-5:** Implement ferruginous hawk–specific mitigation.	None identified

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	BESS Substations	Operation of the BESS and substations may result in loss of potential foraging habitat for ferruginous hawk.	Negligible	Constant	Unavoidable	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-5:** Implement ferruginous hawk–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: golden eagle	Turbine Option 1 Turbine Option 2	Golden eagles are estimated to be the 22nd most likely large bird to collide with the turbines. Further, turbines could create barriers to golden eagle movement over the Lease Boundary.	Medium	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-3:** Implement eagle-specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: golden eagle	Solar Arrays BESS Substations	Solar arrays, BESS, substations, and other ground-based disturbances could reduce foraging habitat for golden eagles, though the Lease Boundary is not expected to provide key or important golden eagle habitat.	Negligible	Long Term	Unavoidable	Confined	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-3:** Implement eagle-specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: great blue heron and sandhill crane	Turbine Option 1 Turbine Option 2	The operation of wind turbines may result in great blue heron and sandhill crane mortality and disturbance.	Medium	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: great blue heron and sandhill crane	Solar Arrays BESS Substations	Habitat loss during construction to accommodate the solar arrays, BESS, and substations would continue through operation.	Negligible	Long Term	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	Turbine Option 1 Turbine Option 2	Direct and indirect habitat loss would persist throughout Project operation. Loggerhead shrike mortality may occur due to strikes with turbines.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	Solar Arrays	Direct and indirect habitat loss would persist throughout Project operation.	Low	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	BESS Substations	Direct and indirect habitat loss would persist throughout Project operation.	Negligible	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	Turbine Option 1 Turbine Option 2	Direct habitat loss would persist throughout Project operation. Operation of the turbines may disturb prairie falcons foraging within the Lease Boundary. Operation of the turbines may result in mortality of prairie falcons. Changes in prey density may change habitat suitability and survivorship of prairie falcons.	Medium	Constant	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-8:** Implement prairie falcon–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	Solar Arrays	Solar arrays may change prey dynamics within the Lease Boundary (e.g., sheltering under arrays), thereby reducing habitat suitability and survivorship of prairie falcons.	Low	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-8:** Implement prairie falcon–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	BESS Substations	Direct habitat loss at the BESS and substations would persist throughout operation.	Negligible	Constant	Unavoidable	Limited	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-8:** Implement prairie falcon–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: ring-necked pheasant	Turbine Option 1 Turbine Option 2	Direct habitat loss would persist through Operation. Operation of the turbines may also result in indirect habitat loss. Ring-necked pheasant mortality may occur due to Project operation. Access roads may result in collisions with ring-necked pheasants.	Low	Long Term	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-9:** Implement ring-necked pheasant–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: ring-necked pheasant	Solar Arrays BESS Substations	Direct habitat loss would persist throughout operation. Access roads may result in collisions with ring-necked pheasants.	Negligible	Long Term	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-9:** Implement ring-necked pheasant–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: sagebrush sparrow and sage thrasher	Turbine Option 1 Turbine Option 2 Solar Arrays	Direct and indirect habitat loss would persist throughout Project operation.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: sagebrush sparrow and sage thrasher	BESS Substations	Direct and indirect habitat loss would persist throughout Project operation.	Negligible	Long Term	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Turbine Option 1	Operation of turbines may result in the continued loss and disturbance of foraging habitat. Operation of Option 1 may result in tundra swan mortality through collision with turbines.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Veg-4:** As-built report and offset calculation. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Turbine Option 2	Operation of turbines may result in the continued loss and disturbance of foraging habitat. Turbine Option 2 is predicted to have an exposure index of 0.	Negligible	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Solar Arrays	Operation of the solar array may result in continued loss of foraging habitat. Tundra swans may be killed if attempting to land on solar arrays.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	BESS Substations	Operation of the BESS and substations may result in continued loss of foraging habitat.	Negligible	Long Term	Unavoidable	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Vaux's swift	Turbine Option 1 Turbine Option 2	Vaux's swift migrating over the Lease Boundary are susceptible to strikes during migration.	Low	Long Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Vaux's swift	Solar Arrays BESS Substations	No effects on Vaux's swift from these facilities are expected.	Negligible	Long Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Turbine Option 1 Turbine Option 2	Operation of the turbines may result in indirect loss of jackrabbit habitat and mortality along access roads. Direct habitat loss is expected to persist throughout operation.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-10:** Implement black and white-tailed jackrabbit–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Solar Arrays	Solar arrays could provide shelter for jackrabbits reducing predation. Mortality may along access roads may occur.	Low	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-10:** Implement black and white-tailed jackrabbit–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: black-tailed jackrabbit and white-tailed jackrabbit	BESS Substations	Operation of the turbines may result in direct loss of jackrabbit habitat and mortality along access roads.	Negligible	Long Term	Unavoidable	Limited	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-10:** Implement black and white-tailed jackrabbit–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	Turbine Option 1 Turbine Option 2	Townsend's big-eared bat mortality may occur due to Project operation. Operation may result in indirect loss of foraging habitat.	Low	Long Term	Probable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	Solar Arrays	Townsend's big-eared bat may collide with solar arrays during operation.	Low	Long Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	BESS Substations	Interaction with BESS and substations are not predicted.	Negligible	Long Term	Unlikely	Limited	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's ground squirrel	Turbine Option 1 Turbine Option 2 Solar Arrays	Townsend's ground squirrel mortality may continue along access roads during operation. Operation of the solar arrays may alter Townsend's ground squirrel behavior by providing shelter. Mortality may occur along access roads.	Medium	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-12:** Implement Townsend's ground squirrel–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's ground squirrel	BESS Substations	Direct habitat loss would persist through operation. Mortality may occur along access roads during operation of BESS and substations.	Negligible	Constant	Feasible	Limited	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-12:** Implement Townsend's ground squirrel–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	Turbine Option 1 Turbine Option 2	Operation of the Project may result in direct and indirect habitat loss to pronghorn antelope. Pronghorn antelope mortality may occur along maintenance roads.	Medium	Constant	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-13:** Implement pronghorn antelope–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	Solar Arrays	Pronghorn antelope would be precluded from solar arrays during operation due to fencing. Pronghorn antelope mortality may occur along maintenance roads.	Medium	Constant	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-13:** Implement pronghorn antelope–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	BESS Substations	Pronghorn antelope would be precluded from BESS and substations. Pronghorn antelope mortality may occur along maintenance roads.	Negligible	Long Term	Unavoidable	Limited	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-13:** Implement pronghorn antelope–specific mitigation.	None identified

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Energy (Section 4.7)	Consumption of Raw Materials and Commodities	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Turbine maintenance may require generator-specific lubricants and fluids produced outside the Project vicinity. O&M vehicles would need an ongoing supply of fuel purchased locally. Water for the Project's O&M facility would be purchased from a local vendor and sourced from Kennewick. Aggregate for access road maintenance would be obtained locally.	Low	Long Term	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement **ENR-2:** Install high-efficiency electrical fixtures and appliances **ENR-3:** Install high-efficiency security lighting **ENR-4:** Install low-water-use flush toilets **ENR-5:** Capture and recycle wash water	None identified
Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Turbine Option 1 Turbine Option 2 BESS Substations	Although livestock would be able to graze up to turbines and associated structures, limited but measurable acreage would remain out of agricultural production.	Negligible	Long Term	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan	None identified
Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Solar Arrays	Exclusionary fencing would be installed around the solar arrays. Exclusionary fencing would prevent the solar array project areas from being used for agricultural activities throughout the Project's operations stage. The loss of available farmland would result in a reduction in dryland wheat production and, potentially, a loss in grazing areas for livestock.	Low	Long Term	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan	None identified
Land and Shoreline Use (Section 4.8)	Wineries and agritourism (Profitability)	Turbine Option 1 Turbine Option 2	Changes in landscape character through the introduction of turbines that could be seen from wineries and agritourism businesses would indirectly impact wine-tasting tourism.	Low	Long Term	Probable	Local	**VIS-1–VIS-9** For details on these mitigation measures, refer to Section 4.10	None identified
Land and Shoreline Use (Section 4.8)	Wineries and agritourism (Profitability)	Solar Arrays BESS Substations	The conversion of existing agricultural lands to energy infrastructure would result in visual contrast and changes in the landscape setting. Due to the location of the solar arrays, BESS, and substations, the changes may not be visible from the wineries and agritourism businesses.	Negligible	Long Term	Unlikely	Local	**VIS-1–VIS-9** For details on these mitigation measures, refer to Section 4.10	None identified

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Adverse effects on resources through a loss or diminishment of integrity.	Low	Long term for impacts from noise and dust Constant for impacts from the turbine operation	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unidentified historic and cultural resources	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Adverse effects on resources through a loss or diminishment of integrity	Low	Long Term	Probable	Local	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	*None identified*
Historic and Cultural Resources (Section 4.9)	Traditional Cultural Properties	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Noise, vibration, visual interferences, and restriction of access.	High	Long term for impacts from noise and dust Constant for impacts from turbine operation and security measures	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties and resources.
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	Turbine Option 1 Turbine Option 2	The wind turbines, and comprehensive Project, would dominate views from many KOP locations, and the landscape would appear strongly altered.	High	Long Term	Unavoidable	Regional	**VIS-1:** Relocate turbines located within the foreground distance. **VIS-2:** No advertising, cell antennas, commercial messages, or symbols placed on wind turbines. **VIS-3:** Maintain clean nacelles and towers.	Significant for Visual Aspects.
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	Solar Arrays (all options) Substations Transmission Lines	The solar arrays (all options), substations, and transmission lines would attract attention and would modify the existing landscape setting.	Medium	Long Term	Unavoidable	Regional	**VIS-4:** Avoid complete removal of vegetation beneath solar arrays. **VIS-5:** Install color-treated, opaque fencing to screen views of the solar arrays. **VIS-8**: Choose the type of transmission structure to best match the adjacent transmission lines.	None identified

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	County Well Solar Array	The County Well solar array siting area would dominate views from KOP 12 and the local landscape would appear strongly altered where there are limited existing landscape modifications.	High[e]	Long Term	Unavoidable	Local	**VIS-4:** Avoid complete removal of vegetation beneath solar arrays. **VIS-5:** Install color-treated, opaque fencing to screen views of the solar arrays.	None identified
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	Transmission Lines	The transmission lines would dominate views from KOP 15 and the landscape would appear strongly altered in this localized area where there are limited existing landscape modifications.	High	Long Term	Unavoidable	Local	**VIS-7**: Maximize the span length across highways and other linear viewing locations. **VIS-8**: Choose the type of transmission structure to best match the adjacent transmission lines.	None identified
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	BESS	The BESS would attract attention from some KOP locations and would modify the localized existing landscape setting.	Medium	Long Term	Unavoidable	Local	**VIS-6:** Design BESS to blend with the adjacent agricultural character.	None identified
Visual Aspects, Light and Glare (Section 4.10)	Shadow Flicker	Turbine Option 1 Turbine Option 2	Wind turbines would create shadow flicker that would impact Project participants.	Medium	Long Term	Probable	Confined	**SF-1:** The Applicant would attempt to avoid, minimize. and mitigate shadow flicker at nearby residences. **SF-2:** The Applicant would set up a complaint resolution procedure.	None identified
Visual Aspects, Light and Glare (Section 4.10)	Light	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations Transmission Lines	Lighting for security purposes and to conform with FAA requirements would be visible outside the Lease Boundary but would have limited effect in terms of light trespass and sky glow degradation.	Low	Long Term	Unavoidable	Local	**LIG-1:** Use LEED-certified building exterior(s) and security lighting.	None identified
Recreation (Section 4.12)	Recreation – Use	Turbine Option 1 Turbine Option 2	Turbines would limit recreational activities (i.e., paragliding) that occur on public land near areas of operation.	Low	Long Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails)	None identified

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Recreation (Section 4.12)	Recreation – Use	Solar Arrays	Operation of the Sellards Solar Field would restrict access to a parcel of DNR-administered land within the Lease Boundary.	High	Long Term	Unavoidable	Limited	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails)	None identified
Recreation (Section 4.12)	Recreation – Recreational Experience	Turbine Option 1 Turbine Option 2 Solar Arrays	Impacts on noise receptors would be limited, while visual impacts would occur regionally.	Low	Long Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest	None identified
Recreation (Section 4.12)	Recreation – Public Health and Safety	Turbine Option 1 Turbine Option 2 Solar Arrays	The Project's potential to affect the health and safety of recreationists using the area for paragliding and hang gliding would results in a medium impact during the life of the Project. Impacts on recreationists would occur beyond neighboring receptors.	Medium	Long Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	Significant for paragliding and hang gliding public health and safety
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Turbine Option 1 Turbine Option 2	Spontaneous fire or explosions from operating wind turbines are rare but could occur during Project operations.	Low	Temporary	Unlikely	Limited	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Substations	Substation transformers have a minimal risk of fire or explosion during construction.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	BESS	Lithium-ion batteries used for the BESS may pose a risk of fire and explosion during operation because they may overheat, but the BESS would include a fire suppression system.	Medium	Temporary	Feasible	Limited	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified
Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	Turbine Option 1 Turbine Option 2 BESS Substations	Indirect impacts if a fire were to occur during operation of the turbines and substation could include smoke or haze, and a potential reduction in emergency response services.	Low	Temporary	Unlikely	Regional	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified

Table ES-4b: Summary of Potential Impacts by Component during Operation of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Public Services and Utilities (Section 4.15)	Wastewater	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Wastewater from the O&M facilities would be discharged to an on-site septic system. It is anticipated that the operations stage would use less than 5,000 gallons of water per day and that wastewater would be generated from kitchen and bathroom use.	Low	Long Term	Unavoidable	Local	**ENR-5:** Capture and recycle wash water	None identified
Public Services and Utilities (Section 4.15)	Municipal Solid Waste	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Operation of the Project is expected to generate approximately one or two dumpsters of waste per week at the O&M facilities.	Low	Constant	Unavoidable	Local to Regional (depending on location of landfill)	**PSU-1:** Use of a licensed waste disposal facility	None identified

Notes:
[a] Components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS = battery energy storage system; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; FAA = Federal Aviation Administration; FTE = full-time equivalent; KOP = key observation point; LEED = Leadership in Energy and Environmental Design; O&M = operations and maintenance; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife Service; ZOI = zone of influence

Table ES-4c

Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

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Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Earth Resources (Section 4.2)	Soils (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning activities associated with the Project could impact and disturb the soil profile, due to excavating foundations and utilities, removing unsealed areas, restoring the original ground profile, and rehabilitating vegetation.	Low	Short Term	Unavoidable	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Topography (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	The Applicant would restore the original topographic profile in areas of previous development.	Low	Short Term	Probable	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified
Earth Resources (Section 4.2)	Landslide Hazards and Ground Instability (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Detailed Site Restoration Plan	None identified

Notes:
Table continues below, notes apply to remainder of table
[a] Components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS = battery energy storage system; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; SWPPP = stormwater pollution prevention plan; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Water Resources (Section 4.4)	Physical Disturbance	Turbine Option 1 Turbine Option 2 Solar Arrays	Project decommissioning would result in physical disturbance that could impact surface water and wetlands, runoff and absorption capacity, floodplains, and groundwater resources.	Low	Short Term	Unavoidable	Confined	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-6:** Wetland SWPPP.	None identified
Water Resources (Section 4.4)	Physical Disturbance	BESS Substations	Project decommissioning would result in physical disturbance that could impact surface water and wetlands, runoff and absorption capacity, floodplains, and groundwater resources.	Low	Short Term	Unavoidable	Limited	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-6:** Wetland SWPPP.	None identified
Water Resources (Section 4.4)	Change in Water Quality	Turbine Option 1 Turbine Option 2	Project decommissioning would require temporary disturbance, which could impact water quality.	Low	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-5:** Employee Training. **W-6:** Wetland SWPPP. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Change in Water Quality	Solar Arrays	Project decommissioning would require temporary disturbance areas to access and remove Project components located near ephemeral and intermittent streams and could result in changes to water quality.	Negligible	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows. **W-2:** Minimize Work in Heavy Rain. **W-3:** Check Dams. **W-5:** Employee Training. **W-6:** Wetland SWPPP. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Change in Hydrology	Turbine Option 1 Turbine Option 2	Project decommissioning would require temporary disturbance to some ephemeral and intermittent streams but would restore the disturbance areas following decommissioning.	Low	Short Term	Unlikely	Limited	**W-3:** Check Dams.	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

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Water Resources (Section 4.4)	Introduction of Hazardous Substances	Turbine Option 1 Turbine Option 2	Project decommissioning could result in the introduction of hazardous substances to water resources.	Low	Temporary	Unlikely	Local	**W-5:** Employee Training. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Introduction of Hazardous Substances	Solar Arrays BESS Substations	Project decommissioning could result in the introduction of hazardous substances to water resources.	Negligible	Temporary	Unlikely	Limited	**W-5:** Employee Training. **W-8:** Spill Response Equipment.	None identified
Water Resources (Section 4.4)	Impacts on Public Water Supply	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Project decommissioning could result in impacts on public water supply.	Low	Temporary	Unlikely	Regional	**W-9:** Minimize Water Use.	None identified
Vegetation (Section 4.5)[35]	Loss of Extent of Priority Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2	Decommissioning of the Project would require temporary disturbance areas to remove Project components, which would result in direct loss of WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified

[35] Blue highlight identifies Impacts of Medium and High magnitude.

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Temporary Disturbance	East Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Medium	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Temporary Disturbance	County Well Solar Field BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Negligible	Short Term	Unlikely	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vegetation (Section 4.5)	Loss of Extent of Priority Habitat – Temporary Disturbance	Sellards Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Low	Long Term	Feasible	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent Other Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Low	Short Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan	None identified
Vegetation (Section 4.5)	Loss of Extent Other Habitat – Temporary Disturbance	Solar Arrays BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Negligible	Short Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vegetation (Section 4.5)	Loss of Extent Special Status Plant Species	Turbine Option 1 Turbine Option 2 East Solar Field	Site clearing associated with decommissioning of the Project would result in direct loss of populations of special status plant species or their habitat.	Low	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Loss of Extent Special Status Plant Species	County Well Solar Field Sellards Solar Field BESS Substations	Site clearing associated with decommissioning of the Project would result in direct loss of populations of special status plant species or their habitat.	Negligible	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vegetation (Section 4.5)	Habitat Degradation	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Project decommissioning could result in habitat degradation from the introduction of hazardous material, surface runoff, introduction or spread of invasive plant or noxious weeds, and the deposition of dust.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Turbine Option 1 Turbine Option 2	Project decommissioning could result in habitat fragmentation from fire.	Low	Long Term	Feasible	Local	**Veg-6:** Decommissioning Legislated Requirements **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Vegetation (Section 4.5)	Habitat Fragmentation	Solar Arrays BESS Substations	Project decommissioning could result in habitat fragmentation from fire.	Low	Long Term	Unlikely	Local	**Veg-6:** Decommissioning Legislated Requirements **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Wildlife and Habitat (Section 4.6)	Habitat loss	Turbine Option 1 Turbine Option 2	The Project would result in temporary loss of habitat during decommissioning. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation.	Negligible	Short Term	Unavoidable	Local	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-1:** Tree Avoidance. **Veg-7:** Detailed Site Restoration Plan.	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wildlife and Habitat (Section 4.6)	Habitat loss	Solar Arrays	The Project would result in temporary loss of habitat during decommissioning. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation.	Negligible	Short Term	Unavoidable	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-1:** Tree Avoidance. **Veg-7:** Detailed Site Restoration Plan.	None identified
Wildlife and Habitat (Section 4.6)	Habitat loss	BESS Substations	The Project would result in temporary loss of habitat during decommissioning. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation.	Negligible	Short Term	Unavoidable	Limited	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-1:** Tree Avoidance. **Veg-7:** Detailed Site Restoration Plan.	None identified
Wildlife and Habitat (Section 4.6)	Mortality of non-special status species	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit activity disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Wild-8:** Establish buffers around raptor nests.	None identified
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	Turbine Option 1 Turbine Option 2 Solar Arrays	Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan.	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wildlife and Habitat (Section 4.6)	Barriers to movement and fragmentation	BESS Substations	Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas.	Negligible	Short Term	Feasible	Limited	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: striped whipsnake and sagebrush lizard	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Ground disturbance and machinery use during Project decommissioning could result in mortality of striped whipsnake and sagebrush lizard.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-1:** Implement striped whipsnake and sagebrush lizard–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: American white pelican	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning of the Project may disturb American white pelicans moving over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Hab-4:** Develop TAC. **Spec-2:** Implement American white pelican–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: bald eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning of the Project could disturb bald eagles, resulting in avoidance of the Project site.	Negligible	Short Term	Feasible	Confined	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Spec-3:** Implement eagle-specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: burrowing owl	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning may result in mortality from machinery operation over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule activity during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-4:** Implement burrowing owl–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: ferruginous hawk	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning may result in mortality from machinery operation over the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-5:** Ferruginous hawk–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: golden eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning of the Project could disturb golden eagles, resulting in avoidance of the Project site, though golden eagle nesting has not been reported within 10 miles of the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Spec-3:** Implement eagle-specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: great blue heron and sandhill crane	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning activities may disturb birds flying over the Lease Boundary, resulting in bird flight paths being diverted around the area.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: loggerhead shrike	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning may disturb birds foraging and nesting within the Lease Boundary. Machinery could result in mortality of birds and destruction of nests.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Decommissioning revegetation plan **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: prairie falcon	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Disturbance from decommissioning activities may result in disturbance to prairie falcons.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-8:** Implement prairie falcon specific–mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: ring-necked pheasant	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Disturbance from decommissioning activities may result in indirect habitat loss. Access roads may result in collisions with ring-necked pheasants.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning **Veg-7:** Decommissioning revegetation plan **Spec-9:** Implement ring-necked pheasant–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: sagebrush sparrow and sage thrasher	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning may disturb birds foraging and nesting within the Lease Boundary. Machinery could result in mortality of birds and destruction of nests.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: tundra swan	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning may disturb tundra swans flying over and foraging within the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Vaux's swift	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning of the Project could disturb Vaux's swifts in flight over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Disturbance from decommissioning activities may result in indirect habitat loss. Access roads may result in collisions with jackrabbits.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-10:** Implement black and white-tailed jackrabbit–specific mitigation.	None identified

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Wildlife and Habitat (Section 4.6)	Special status species: Townsend's big-eared bat	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning activities could disturb Townsend's big-eared bat foraging within the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-7:** Schedule construction during daylight hours. **Hab-4:** Develop TAC. **Spec-11:** Implement Townsend's big-eared bat–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: Townsend's ground squirrel	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Mortality may occur during decommissioning and along access roads.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-12:** Implement Townsend's ground squirrel–specific mitigation.	None identified
Wildlife and Habitat (Section 4.6)	Special status species: pronghorn antelope	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning is predicted to result in indirect habitat loss. Increased traffic on existing and new access roads may result in pronghorn antelope mortality.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-13:** Implement pronghorn antelope–specific mitigation.	None identified

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Energy (Section 4.7)	Consumption of Raw Materials and Commodities	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Energy consumption, predominantly in the form of gasoline, diesel fuel, and electricity, would be required to operate equipment such as cranes, trucks, tools, and vehicles used to dismantle and remove most Project facilities and reclaim disturbed areas. Backfilling void spaces created by the removal of foundations would require construction aggregate.	Low	Short Term	Unavoidable	Local	**ENR-6:** Recycle all components of the Project	None identified
Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Turbine Option 1 Turbine Option 2 BESS Substations	Similar to the construction stage	Negligible (farm plan modifications) Low (decreased productivity)	Temporary (brief access modifications) Short Term (seasonal restrictions	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan. **LSU-2:** The Applicant would prepare a dryland farming management plan. **LSU-3:** Arrange for the removal of livestock. **LSU-4:** Confirm that site restoration activities are in alignment with the Applicant's decommissioning plan. **LSU-5:** Requirements for requesting an alternative land use as part of decommissioning.	None identified

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Land and Shoreline Use (Section 4.8)	Agriculture (Productivity)	Solar Arrays	Impacts would be less than those described for the construction stage as dryland wheat production located within the solar array project area would have previously been taken out of management.	Low	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan. **LSU-2:** The Applicant would prepare a dryland farming management plan. **LSU-3:** Arrange for the removal of livestock. **LSU-4**: Confirm that site restoration activities are in alignment with the Applicant's decommissioning plan. **LSU-5:** Requirements for requesting an alternative land use as part of decommissioning.	None identified
Historic and Cultural Resources (Section 4.9)	Precontact Archaeological resources; DAHP-issued permit required prior to disturbance - OR - Avoidance requested and recommended	Turbine Option 1 Turbine Option 2	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	High	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Historic-period archaeological isolates and sites determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural resources determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Adverse effects on resources through a loss or diminishment of integrity.	Low	Short-term	Feasible	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural resources determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Physical impacts	Low	Constant	Unlikely	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified

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Historic and Cultural Resources (Section 4.9)	Unevaluated archaeological historic-period sites	Turbine Option 1 Turbine Option 2 Solar Arrays	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Medium	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Adverse effects on resources through a loss or diminishment of integrity	Low	Short term	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Physical impacts	High	Constant	Unlikely	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Historic and Cultural Resources (Section 4.9)	Unidentified historic and cultural resources	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity.	High	Constant	Probable	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic and Cultural Resources (Section 4.9)	Traditional Cultural Properties	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference.	High	Short term	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties and resources
Visual Aspects, Light and Glare (Section 4.10)	Visual Aspect	Turbine Option 1 Turbine Option 2	Activities would attract attention and would modify the localized existing landscape setting.	Medium	Short Term	Probable	Local	No mitigation identified	None identified
Recreation (Section 4.12)	Recreation – Use	Turbine Option 1 Turbine Option 2	Decommissioning would result in impacts on recreationists who use the Project's study area for recreational activities. Paragliders, hang gliders, and cyclists would be affected by the decommissioning of the Project.	Low	Short Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails). **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationists safe.	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

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Recreation (Section 4.12)	Recreation – Use	Solar Arrays	Decommissioning of the Sellards Solar Field would restrict access to a parcel of DNR-administered land within the Lease Boundary, resulting in a high impact.	High	Short Term	Unavoidable	Limited	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails).	None identified
Recreation (Section 4.12)	Recreation – Recreational Experience	Turbine Option 1 Turbine Option 2 Solar Arrays	Indirect impacts related to visual resources and noise could occur at recreation sites. Impacts on noise receptors would occur locally, while visual impacts would occur at a regional spatial extent.	High	Short Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest.	None identified
Recreation (Section 4.12)	Recreation – Public Health and Safety	Turbine Option 1 Turbine Option 2 Solar Arrays	The Project's potential to affect the health and safety of recreationists using the area for paragliding, hang gliding, or biking would result in a medium impact.	Medium	Short Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationists safe	None identified
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Turbine Option 1 Turbine Option 2	Combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during decommissioning. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Fire (Worker Health and Safety)	Solar Arrays BESS Substations	Fire resulting from decommissioning BESS, solar arrays, and substations is unlikely, but wildfire risk in the area is considered high.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	Turbine Option 1 Turbine Option 2	If a fire were to occur during turbine decommissioning, indirect impacts could include smoke or haze, and a potential reduction in emergency response services.	Medium	Temporary	Feasible	Regional	No mitigation identified	None identified

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Public Health and Safety (Section 4.13)	Public Health (Smoke and Haze)	Solar Arrays BESS Substations	If a fire were to occur during decommissioning of the solar arrays, substations, or BESS, indirect impacts could include smoke or haze, and a potential reduction in emergency response services.	Medium	Temporary	Unlikely	Regional	No mitigation identified	None identified
Public Health and Safety (Section 4.13)	Release of Hazardous Materials	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Project elements include small amounts of oil, which could be released during decommissioning.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified
Transportation (Section 4.14)	Vehicular Traffic	Turbine Option 1 Turbine Option 2 Solar Arrays	Decommissioning would require the removal and transportation of the dismantled pieces of the turbines, expected to be smaller than the pieces that arrived during the Construction Stage. The increase in traffic volumes is not expected to decrease level of service or cause a decline in roadway safety.	Low	Short Term	Unavoidable	Regional	**TR-1:** Daily transport communication, including emergency numbers. **TR-2:** Operation Lifesaver safety presentation and training. **TR-3:** Traffic Analysis. **TR-4:** Railroad crossing and grade change survey. **TR-5:** Traffic and Safety Management Plan. **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified
Transportation (Section 4.14)	Vehicular Traffic	BESS Substations	Decommissioning would require the removal and transportation of the BESS and substations. The increase in traffic volumes is not expected to decrease level of service or cause a decline in roadway safety.	Low	Temporary	Probable	Local	**TR-1:** Daily transport communication, including emergency numbers. **TR-2:** Operation Lifesaver safety presentation and training. **TR-3:** Traffic Analysis. **TR-4:** Railroad crossing and grade change survey. **TR-5:** Traffic and Safety Management Plan.	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Public Services and Utilities (Section 4.15)	Municipal Solid Waste (Level of Service)	Turbine Option 1 Turbine Option 2 Solar BESS Substations	After dismantling of the facility, high-value components would be removed for scrap value. The remaining materials would be reduced to transportable size and removed from the site for disposal. Existing facilities would maintain capacity to receive the Project's non-recyclable waste and continue to serve their communities.	Low	Constant	Unavoidable	Local to Regional	**ENR-7:** Recycle all applicable components. **PSU-1:** Use of a licensed waste disposal facility.	None identified
Socioeconomics (Section 4.16)	Economic Environment (Housing Availability)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	The majority of construction workers would be sourced locally; however, the Project's construction would require temporary and short-term relocation of construction workers into the region.	Negligible	Temporary to Short Term	Feasible	Regional	**Socio-ec-1:** Updated housing analysis to confirm temporary or short-term availability	None identified
Socioeconomics (Section 4.16)	General Welfare and Social Conditions (Wellbeing)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Decommissioning of the Project would restore property tax revenues for Benton County and the Tax Area to pre-Project conditions as the Project's added value would be removed from the parcels that make up the Lease Boundary's valuation. For example, smaller collections would impact operational budgets for schools, school districts, and fire stations within Benton County and the Tax Area.	Medium	Short Term	Feasible	Regional	No mitigation identified	None identified

Table ES-4c: Summary of Potential Impacts by Component during Decommissioning of the Proposed Action

Section	Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Socioeconomics (Section 4.16)	Environmental Justice (People of color and Low-Income Populations)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Temporary to Short Term	Feasible	Regional	No mitigation identified	None identified

Notes:
[a] Components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS = battery energy storage system; DNR = Washington State Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council; SWPPP = stormwater pollution prevention plan; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

1.0 CHAPTER 1 – PROJECT BACKGROUND

1.1 Introduction

Horse Heaven Wind Farm, LLC (the Applicant) is proposing to construct and operate the Horse Heaven Wind Farm (Project, or Proposed Action) in unincorporated Benton County, Washington, within the Horse Heaven Hills area. At its closest point, the Project would be located approximately 4 miles south/southwest of the City of Kennewick and the larger Tri-Cities urban area, along the Columbia River. A map showing the Project area is presented in **Figure 1-1**.

1.2 Proposed Project

1.2.1 Project Overview

The Project would consist of a renewable energy generation facility that, as stated in the 2022 Application for Site Certification (ASC), would have a nameplate energy-generating capacity of up to 1,150 megawatts (MW)[1] output as alternating current (MWac) for a combination of wind and solar facilities, as well as battery energy storage systems (BESS) (Horse Heaven Wind Farm, LLC 2022). The number of turbines and extent of solar arrays would depend on the final turbine models and/or solar modules selected, as well as the final array layout options. Other Project components would include underground and overhead electrical collection lines, underground communication lines, new Project substations, access roads, operations and maintenance facilities, meteorological towers, and control houses.

The Project's electrical system would consist of three key elements that would be connected to the turbines and solar facilities in any configuration combination: 1) an electrical collector system, which would collect energy generated at the turbines and solar array, transform the voltage using a pad mounted transformer, and deliver the energy via cables to 2) the Project substations, which would deliver it into the regional transmission system; and 3) BESS,[2] which would be capable of storing and later deploying energy generated by the Project to the grid.

Power generated by the Project would be transmitted to existing Bonneville Power Administration (BPA) transmission lines via both planned interconnections. Power could interconnect to the planned BPA 230-kilovolt (kV) Bofer Canyon Substation. Power could also interconnect to the planned BPA 500-kV Webber Canyon Substation. Power would be transmitted to a purchaser under a contract with the Applicant. Such power purchasers could include any of the local or regional utilities, or commercial and industrial power users, with potential off-takers (i.e., the purchaser of the power) having distribution outside of Washington State.

1.2.2 The Applicant

The Applicant is Horse Heaven Wind Farm, LLC. Scout Clean Energy LLC (Scout) is the indirect owner of 100 percent of the Project. Scout intends to build, own, and operate the Project.

Scout is a renewable energy developer and owner-operator headquartered in Boulder, Colorado, with over 1,200 MW of operating assets. Scout is actively developing a portfolio of over 15,000 MW of onshore wind, solar

[1] The maximum number of wind turbines, solar arrays, and BESS would not exceed what is presented in the Final ASC and analyzed in the EIS. However, since the 2021 ASC was submitted to EFSEC in February 2021, BPA has allowed interconnection requests that facilitate greater installed aggregate nameplate generating capacity. This is a result of newer equipment being more efficient than what was intended for installation at the facilities during design and permitting. Even though more efficient equipment could generate more energy, the instantaneous generation would be controlled to not exceed the grid injection capacity of 1,150 MW.

[2] The Applicant indicated in the 2022 ASC that two BESS would be constructed but has requested analysis for all the components and distinct parts as presented in Table 2.1-1 of the 2022 ASC. This includes three potential locations for the construction of the two BESS.

photovoltaic (PV), and battery storage projects across 24 U.S. states. Scout has expertise in all aspects of renewables project development, permitting, power marketing, finance, construction, 24/7 operations, and asset management. Scout is a portfolio company of Brookfield Renewable. Brookfield Renewable operates one of the world's largest publicly traded, renewable only power platforms. Its portfolio consists of hydroelectric, wind, solar, and storage facilities in North America, South America, Europe, and Asia, and totals approximately 24,000 MW of installed capacity and an approximately 100,000 MW development pipeline.

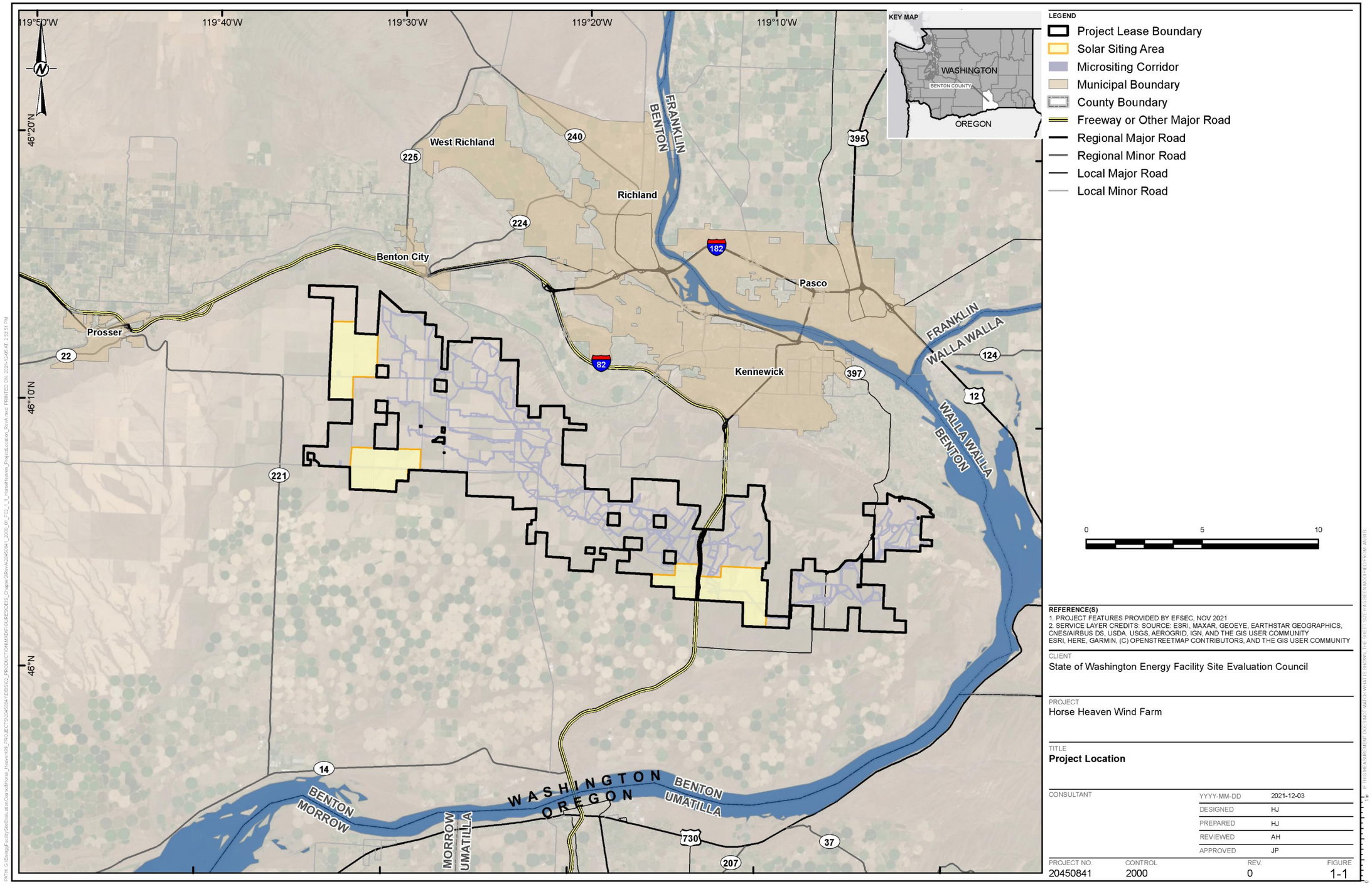


Figure 1-1: Project Location

1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities

The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on the approval or denial of certain major energy facilities in Washington. This includes voluntary applicants such as the proposed facility. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 Energy Facilities – Site Locations and associated regulations. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout to choose to apply for site certification through EFSEC (RCW 80.50.060 (1)) Energy facilities to which chapter applies—Applications for certification—Forms—Council's duties—Potential effects to tribal cultural resources. The Project meets the definition of an "alternative energy resource" that includes "wind" and "solar" (RCW 80.50.020(1)(a)-(b)).

EFSEC is a council comprising the directors of five state agencies (or their designees) and a chairperson appointed by the governor. The state agencies with designees on EFSEC are:

- Department of Commerce
- Department of Ecology (Ecology)
- Department of Fish and Wildlife (WDFW)
- Department of Natural Resources (DNR)
- Utilities and Transportation Commission (UTC)

The directors of other specified state agencies may, at their discretion, choose to participate as council members for a particular proposal before EFSEC. For this Project, the Department of Agriculture has designated a member to EFSEC. Counties, cities, and port districts where a potential project is located also appoint members to EFSEC. For this proposed Project, Benton County Board of Commissioners has appointed a member.

EFSEC's review of the proposal is guided by RCW 80.50.010 which states the following:

- *The legislature finds that the present and predicted growth in energy demands in the state of Washington requires a procedure for the selection and use of sites for energy facilities and the identification of a state position with respect to each proposed site. The legislature recognizes that the selection of sites will have a significant impact upon the welfare of the population, the location and growth of industry and the use of the natural resources of the state.*
- *It is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change while conducting a public process that is transparent and inclusive to all with particular attention to overburdened communities.*
- *The legislature finds that the in-state manufacture of industrial products that enable a clean energy economy is critical to advancing the state's objectives in providing affordable electricity, promoting renewable energy, strengthening the state's economy, and reducing greenhouse gas emissions. Therefore, the legislature intends to provide the council with additional authority regarding the siting of clean energy product manufacturing facilities.*

- *It is the policy of the state of Washington to recognize the pressing need for increased energy facilities, and to ensure through available and reasonable methods that the location and operation of all energy facilities and certain clean energy product manufacturing facilities will produce minimal adverse effects on the environment, ecology of the land and its wildlife, and the ecology of state waters and their aquatic life.*

After evaluating the proposed Project, EFSEC will submit a recommendation to the governor. If EFSEC recommends approval of the proposed Project, EFSEC will submit a draft Site Certification Agreement (SCA) for the governor's signature. An approved SCA typically includes conditions that the Applicant must meet during Project construction, operation, and eventual decommissioning. Within 60 days of receipt of EFSEC's recommendation, the governor may approve the Project, reject the Project, or direct EFSEC to reconsider the SCA. If an ASC is denied, the proposed project cannot be constructed and operated.

1.3 Purpose and Need of Proposed Action

The primary purpose and need for this Environmental Impact Statement (EIS) is to provide an impartial discussion of environmental impacts, reasonable alternatives, and mitigation measures that avoid or minimize adverse environmental impacts as well as to identify adverse environmental impacts that are likely to remain significant following implementation of proposed Applicant commitments and imposed mitigation measures. EFSEC Council members will use the information presented herein in conjunction with applicable regulations and other relevant information to make a recommendation to the governor on whether to approve, condition, or deny the Project.

Applicant's Purpose

The purpose of the proposed Project is to provide up to 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria:

- Commercially viable above-average wind speeds
- Sufficient flat area and solar irradiance to site solar PV panels
- Close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid
- Area landowners are willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility

1.4 State Environmental Policy Act Review Process

During the site certification process, EFSEC functions as the "lead agency" responsible for complying with the Washington State Environmental Policy Act (SEPA) procedural requirements (Washington Administrative Code [WAC] 463-47). EFSEC prepared this EIS with the assistance of an independent consultant, as provided for in WAC 463-47-090(2)(b). EFSEC and its independent consultant reviewed all Applicant-prepared information and analyses before inclusion in this EIS. EFSEC staff and EFSEC's consultant also supplemented the Applicant-prepared information and analyses during preparation of this EIS.

1.4.1 Initiation of Public Engagement

On March 9, 2021, EFSEC issued an announcement for a Public Informational Meeting and Land Use Consistency Hearing on the EFSEC website and mailed the announcement to those on the interested parties' distribution list, tribes, and EFSEC's general distribution list. Public notice was published in Tri-City Herald for the

SEPA Scoping on May 12, 2021, and the Scoping Notice was posted to the SEPA Register on May 14, 2021. The Applicant's submittal included a request for expedited processing under WAC 463-43. EFSEC further identified that copies of the application were available upon request and that a virtual public information meeting would be conducted at a later date. On March 29, 2021, the Applicant withdrew its request for expedited processing.

An informational public meeting and land use consistency hearing were held on March 30, 2021, to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances.

1.4.1.1 EFSEC Public Information Meeting

In accordance with WAC 463-26-025, on March 30, 2021, EFSEC held a virtual public information meeting to explain the process that would be followed for review of the proposal. Members of the public were given an opportunity to provide oral and written comments.

1.4.1.2 EFSEC Land Use Consistency Hearing

In accordance with RCW 80.50.090(2), on March 30, 2021, EFSEC held a virtual land use consistency hearing to determine whether the proposed Project is consistent and in compliance with city, county, and regional land use plans or zoning ordinances. The land use consistency determination, EFSEC Order No. 883, was issued May 17, 2022.

1.4.2 Scoping

1.4.2.1 State Environmental Policy Act Scoping Notice

On May 11, 2021, EFSEC staff issued the *SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project* (Scoping Notice) requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. The Scoping Notice included a summary of the Proposed Action and information on the scoping process for preparation of an EIS. The Scoping Notice requested that all scoping comments be received by EFSEC by June 10, 2021.

The Scoping Notice identified the following environmental elements for detailed analysis in the EIS:

- Wildlife and Habitat
- Visual and Aesthetic
- Land Use

The following environmental elements were identified in the Scoping Notice as requiring additional information before determining the level of analysis in the EIS:

- Air
- Water (wetlands, water quality, and water resources)
- Plants
- Energy and Natural Resources
- Environmental Health
- Noise

- Light and Glare
- Historic Resources
- Cultural Resources

1.4.3 Environmental Impact Statement Comment Period and Public Meetings

The Draft EIS for the Project was issued on December 19, 2022, and was open for public review and comment until the close of the Public Comment Period on February 1, 2023. The Draft EIS was reviewed by the public (including the Applicant), other agencies, and tribal governments during the 45-day comment period; the resulting input was used to improve the environmental analysis for the document and produce this EIS. The public comment hearing for the Draft EIS was conducted virtually online via Microsoft Teams and by telephone on February 1, 2023.

1.4.4 EFSEC Adjudicative Proceedings

EFSEC's siting process requires hearings on the proposed project to allow the Applicant and other qualified interested parties to present expert witness testimony regarding the proposed project. EFSEC as required by law must conduct these hearings as formal adjudicative proceedings.

As required by RCW 80.50.090(4), the Washington Administrative Procedure Act (RCW 34.05), and WAC Chapter 463-30, EFSEC began adjudicative proceedings for the proposed Project on December 15, 2022. These proceedings are a formal hearing process similar to a courtroom trial, in which EFSEC hears evidence presented by the parties to the adjudication. In order to facilitate the process, the Council may utilize an administrative law judge provided to conduct the administrative hearings and all matters related thereto. By law, all state agencies and local governments with members of EFSEC are parties to any EFSEC adjudication, although they may elect not to actively participate.

Under state law, the Attorney General appoints an Assistant Attorney General as Counsel for the Environment (CFE) when EFSEC has received a site application for review. The CFE is independent of EFSEC, other state agencies, and parties involved in the site-application proposal.

The CFE plays an important role in the overall project review by representing the public and its interest in protecting the environment on the proposed development of large, non-hydro energy facilities in Washington state. The responsibilities of the CFE include soliciting public input, providing general information concerning the EFSEC process, helping citizens inform EFSEC of their concerns, and participating in the review process, including adjudication.

During the project review process, the CFE actively assesses the environmental impacts a project may have on the local community and the state's natural resources. When a project likely will result in significant environmental impacts, the CFE advocates for measures that will avoid and/or mitigate those impacts.

Other persons or entities with an interest in the adjudication, such as tribes, groups, and local, state, or federal agencies, may petition EFSEC to intervene in the proceedings. EFSEC considers the intervenor petitions and determines whether to grant intervenor party status to the petitioner based on a proposed project’s potential impact to the interest(s) of the intervenors. If denied party status, petitioners for intervention may ask EFSEC to

reconsider its decision on their intervention petition. Petitioners for intervention in the Project included the following parties:

- The Applicant
- Benton County
- CFE
- Tri-City Community for Responsible Environmental Stewardship (C.A.R.E.S.)
- The Confederated Tribes and Bands of the Yakama Nation

Adjudication hearings for the Project were held between August 14, 2023, and August 25, 2023. Information on the adjudication process for the Project is available at the following link: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-adjudication.

1.4.5 Decisions to Be Made

This EIS will inform EFSEC's decision on whether to recommend approval or denial of the proposed Project to the governor, and the EIS will inform the governor's ultimate decision. If EFSEC determines that the Project should be recommended for approval, it will develop a recommendation and a draft SCA to be signed by the governor.

The SCA would contain all requirements and any other conditions the Applicant must meet for construction and operation throughout the Project's life, and for eventual decommissioning of the facility. If EFSEC determines that the Project should not be recommended to the governor for approval, the recommendation will explain EFSEC's decision. The governor has 60 days to consider EFSEC's recommendation and can take one of the following actions:

1. Approve the application and execute the draft SCA.
2. Reject the application
3. Direct EFSEC to reconsider certain aspects of the Project and draft SCA.

1.4.6 Issues to be Resolved

Aircraft-Detection Lights

State of Washington House Bill 1173 signed into law in 2023 by Governor Inslee requires new wind farms to apply to the Federal Aviation Administration (FAA) for permission to install aircraft-detection lights. The systems would turn on flashing red lights on turbines when low-flying aircraft are near and then turn them off when they are safely passed. The bill took effect for new wind farms on July 1, 2023. The FAA, reviews applications on a case-by-case basis and approval is not guaranteed as multiple factors may impact the effectiveness of the technology.

Further Reduction in Project Elements

In response to comments received during the public comment period for the Draft EIS and the process of adjudication, the Applicant has proposed a series of commitments, reductions, and other project changes. The majority of these changes were outlined in the Applicant's August 9, 2023 response to EFSEC's Data Request 9 and have been outlined within the Chapter 4 discussion for each resource. The proposed changes within the Data Request 9 response have been incorporated into EFSEC's assessment of the project and its potential impacts on each resource. A further proposed reduction of nine wind turbines beyond those outlined in the Data Request 9

response for Turbine Option 1 was received from the Applicant on September 26, 2023. While the information regarding this additional reduction will be available to the EFSEC Council for its consideration during deliberations, the reduction has not been assessed or integrated within this EIS due to the late stage at which it was received.

1.5 Federal, State, and Local Permits and Approvals

For facilities under its jurisdiction, EFSEC's governing statutes and rules preempt all aspects of the certification and regulation of energy facilities approved under RCW 80.50. As a result, state, and local regulatory permits, requirements, and standards may not apply to the proposed Project. **Table 1-1** lists the generally applicable state and local permits and approvals that would apply if the Project were not under EFSEC's jurisdiction.

Table 1-1: State (or Federally Delegated) and Local Permits and Approvals

Permit or Approval	Agency/Statute and/or Regulation
State	
Water Quality Permits	Ecology Section 401 of the CWA
Authorization to Use State-owned Lands	DNR RCW 79.36
State Protected Species	WDFW WAC 220-610, State species status and protections WAC 232-23, Classification of wildlife species, including "Priority Habitats and Species" WDFW Wind Guidelines (2009) RCW 77, Hydraulic Code
Access Permit, Utility Permit	WSDOT WAC 468-34-100
Oversize and Overweight Permit	WSDOT WAC 468-38-075
Electrical Construction Permit	WDLI WAC 296-746A, Washington Department of Labor and Industries Safety Standards: Installing Electrical Wires and Equipment – Administration Rules
Noise Control	RCW 70.107, Noise Control WAC 173-58, Sound Level Measurement Procedures WAC 173- 60, Maximum Environmental Noise Levels WAC 463-62-030, Noise Standards
Construction Stormwater General Permit	Ecology CWA (42 U.S.C. 1251-15; CFR 923-930) RCW 90.48, establishes general stormwater permits for Ecology under the Water Pollution Control Act WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington
Sand and Gravel General Permit	Ecology WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington WAC 173-204, sediment management standards WAC 173-226, procedures for issuing general permits

Table 1-1: State (or Federally Delegated) and Local Permits and Approvals

Permit or Approval	Agency/Statute and/or Regulation
Air Permits: New Source Review, Portable Air Containment Sources -Notice of Construction (NOC), and Notice of Intent (NOI)	Benton Clean Air Agency (BCAA) Clean Air Act WAC 463-78 and 173-400 BCAA
Shoreline Substantial Development Permit	Ecology WAC 173-18, Shoreline Management Act, Streams and Rivers Constituting Shorelines of the State WAC 173-22, Adoption of Designations of Shorelands and Wetlands Associated with Shorelines of the State RCW 90.58.140[9]
State Environmental Policy Act (SEPA)	EFSEC RCW 43.21C, Washington Environmental Policy Act WAC 197-11, Washington Department of Ecology SEPA Rules BCC 6.35
Archaeological Sites and Resources, Archaeological Site Alteration and Excavation Permit	DAHP RCW 27.53, Archaeological Sites and Resources
Local	
Conditional Use Permit (CUP)	Benton County Planning and Building Development BCC 11.17.017
Critical Areas Regulations	Benton County Planning and Building Development RCW 36.70A WAC 365-190-(080-130) WAC. 365-195, Best Available Science Section WAC 365-196-485 and WAC 365-196-830, Procedures BCC 15.02.080
Building Permits	Benton County Planning and Building Development BCC 11.42.040
Special Permit - General	Benton County Fire Marshal BCC 3.16.032 International Fire Code (2015 Edition)
Oversized Load Permit	Benton County Department of Public Works RCW 46.44.090
Road Approach Permit	Benton County Department of Public Works RCW 36.75.130
ROW Encroachment Permit	Benton County Department of Public Works RCW 36.75.130
Franchise Agreement	Benton County Department of Public Works RCW 36.55.040

Notes:
BCC = Benton County Code; BCAA = Benton Clean Air Code; CFR = Code of Federal Regulations; CUP = Conditional Use Permit; CWA = Clean Water Act; DAHP = Washington Department of Archaeology and Historic Preservation; DNR = Washington Department of Natural Resources; Ecology = Washington Department of Ecology; EFSEC = Energy Facility Site Evaluation Council; NOC = Notice of Completion; NOI = Notice of Intent; RCW = Revised Code of Washington; ROW = right-of-way; SEPA = Washington State Environmental Policy Act; U.S.C. = United States Code; WAC = Washington Administrative Code; WDFW = Washington Department of Fish and Wildlife; WDLI = Washington Department of Labor and Industries; WSDOT = Washington State Department of Transportation

1.6 Organization of EIS

This EIS is organized into 10 separate chapters and has multiple technical appendices. Chapter 3 and Chapter 4 are further subdivided into 15 sections addressing specific resource topics. **Table 1-2** presents additional details on the organization of the EIS chapters.

Table 1-2: EIS Organizational Structure

Document Contents	Chapter Description
Chapter 1 Project Background and Purpose and Need	Chapter 1 provides background information on the proposed Project and states the purpose and need of the EIS and the Project. The chapter also outlines the steps undertaken to date in the SEPA review process.
Chapter 2 Proposed Action and Alternatives	Chapter 2 provides detailed descriptions of the construction, operation and maintenance, and decommissioning activities proposed for the facility. It explains the Proposed Action, provides an evaluation of alternatives to the Proposed Action, and describes the No Action Alternative. Applicant commitments and proposed best management practices are collated and presented here.
Chapter 3 Affected Environment	Chapter 3 focuses on the pre-Project environmental conditions within the Project area. This chapter has been subdivided into separate sections that describe the existing environment for 15 separate resources.
Chapter 4 Impacts, and Mitigation Measures	Chapter 4 focuses on impacts that may occur to environmental resources from the construction, operation, and decommissioning of the proposed facility. This chapter has been subdivided into separate sections that describe the impacts and mitigation for 15 separate resources.
Chapter 5 Cumulative Impacts	Chapter 5 describes potential cumulative impacts of the Proposed Action when combined with potential impacts from other past, present, and reasonably foreseeable developments that could occur within similar spatial and temporal settings.
Chapter 6 References	Chapter 6 provides references to the literature cited throughout the EIS.
Chapter 7 List of Contributors	Chapter 7 identifies those who contributed to the preparation of the EIS.
Chapter 8 Glossary	The glossary defines many of the terms used in the EIS.
Chapter 9 Distribution List	The distribution list identifies organizations and individuals who were sent an electronic copy of the EIS.
Chapter 10 Summary Comments and Responses on the Draft EIS	This chapter includes a set of consolidated responses that address key issues raised during the comment period. Appendix 10-1 provides responses to individual comments received during the public comment period. The Draft EIS was revised in response to the comments received to create this EIS.

2.0 CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

This chapter describes the Horse Heaven Wind Farm (Project, or Proposed Action) proposed by Horse Heaven Wind Farm, LLC[1] (Applicant) and the alternatives to the Proposed Action that are being considered in this Environmental Impact Statement (EIS). Section 2.1 summarizes the proposed facility site, Proposed Action, and considerations concerning the Construction, Operation, and Decommissioning Stages of the Project. Unless otherwise noted, the information presented in Section 2.1 is sourced from the Final Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2023) and summarizes the Applicant-committed measures for the Project.

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, the Washington Energy Facility Site Evaluation Council (EFSEC) recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the expected changes that the Applicant was making to the Project in response to comments received on the EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). The additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per Washington Administrative Code (WAC) 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings."

Chapter 2 has been updated using the Applicant's changes provided in the Final ASC, where applicable. Additional details regarding the Applicant's rationale for the changes proposed in the Final ASC are provided in Section 2.2. The Applicant's Final ASC included elements that were not previously submitted as part of the Project, nor evaluated as part of the Draft EIS, and therefore have not been analyzed as part of this final version of the EIS. Section 2.2.14 provides additional details regarding which elements from the Applicant's Final ASC were not analyzed for this EIS. Chapter 4 presents a complete analysis of the data and material available prior to the publication of the Draft EIS and subsequently provided by the Applicant to address the issues to be resolved identified in the Draft EIS. Additionally, a new section has been added to each resource's analysis summarizing the impacts related to the Applicant's modifications proposed in the Final ASC. Section 2.3 describes the alternatives considered for evaluation.

[1] An entity of Scout Clean Energy.

2.1 Description of the Proposed Action

The Applicant is proposing to construct a renewable energy generation facility that would be located in the Horse Heaven Hills area of Benton County, Washington. The Project would have a nameplate generating capacity[2] of up to 1,150 megawatts (MW) output as alternating current (MWac) and would utilize both wind turbines and solar photovoltaic panels to convert energy from the wind and sun into electric power. The power would then be either directly transferred to the electric power grid or stored in up to two[3] battery energy storage systems (BESS). The final number of turbines and the extent of solar arrays used for the Project would not total more than 231[4] turbines and two solar arrays. The final number of turbines and solar arrays would depend on the turbine models and solar modules selected and selection of a final array layout.

2.1.1 Proposed Facility Site

The Project's Lease Boundary incorporates the parcels in which the Applicant has executed a lease to construct the turbines, solar arrays, and associated facilities. The Lease Boundary encompasses approximately 72,428 acres and is depicted in **Figure 2-1**.

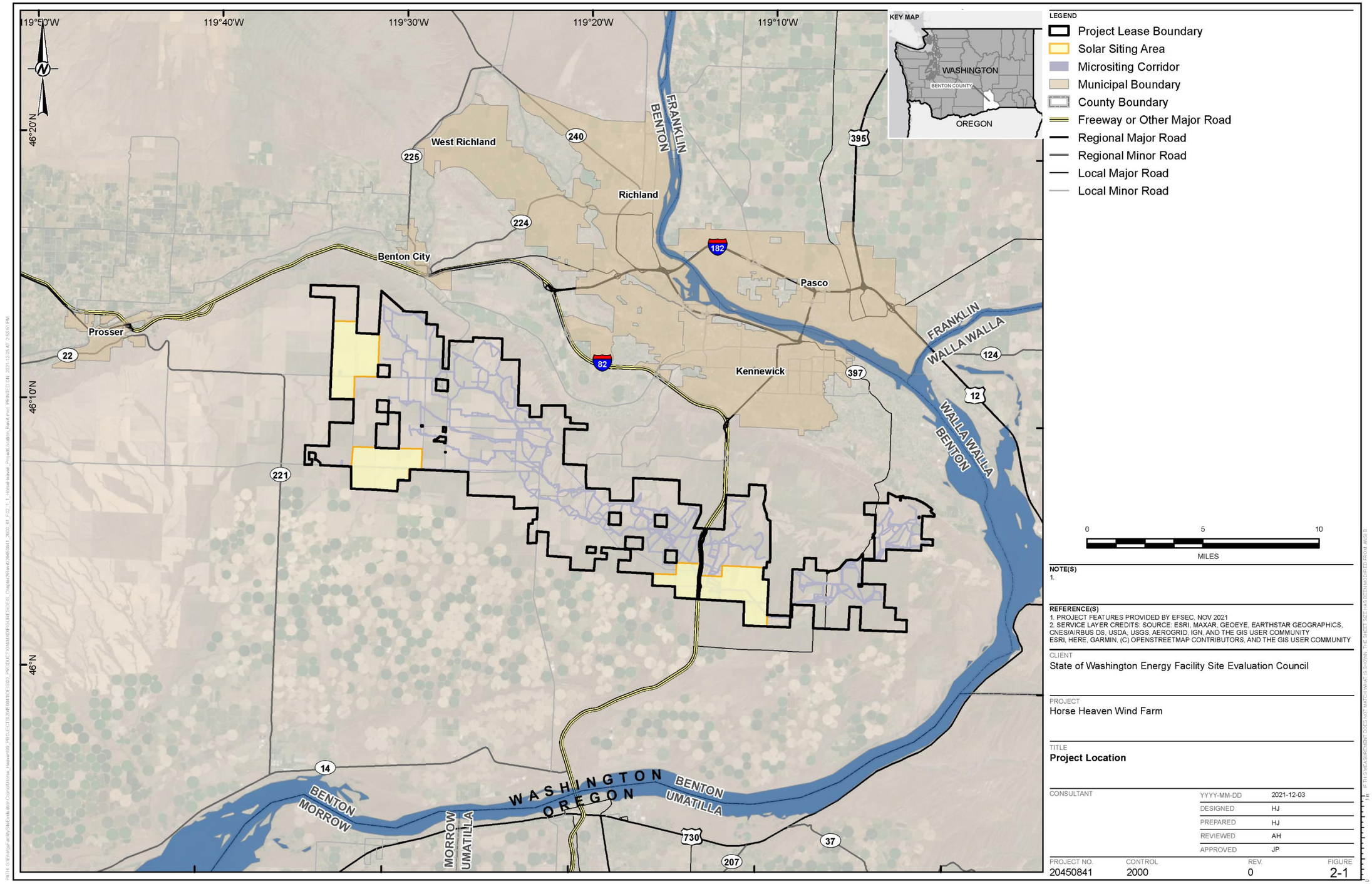
The Project's Wind Energy Micrositing Corridor encompasses 11,850 acres within the Lease Boundary and consists of the areas where the turbines and supporting facilities would be sited during the final design. The Project's Solar Siting Areas, which are three locations under consideration for the two proposed solar arrays, encompass 10,755 acres within the Lease Boundary, but no more than 5,447 acres would be occupied by the solar arrays.[5] Proposed disturbance areas are shown in **Figure 2-2**. The Micrositing Corridor and the Solar Siting Areas are larger than the Project's permanent, designed footprint of the individual components to allow minor rerouting to optimize the design and avoid any sensitive resources discovered during the final design and pre-construction process.

[2] Nameplate generating capacity is the amount of electricity a generator can produce when running at its maximum designed output.

[3] The Applicant provided three locations for consideration of constructing the two BESS. An analysis for all the components and distinct parts as presented in Table 2.1-1 of the ASC has been completed where enough information was provided to do so.

[4] The Final ASC decreased the total maximum number of turbines from 244 to 231 turbines (Horse Heaven Wind Farm, LLC 2023).

[5] The Final ASC decreased the total area to be occupied by the solar arrays from 6,570 acres to 5,447 acres due to the proposed decrease in the East Solar Array (Horse Heaven Wind Farm, LLC 2023).



NOTE(S)
1.

REFERENCE(S)
1. PROJECT FEATURES PROVIDED BY EFSEC, NOV 2021
2. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Project Location

CONSULTANT			
	YYYY-MM-DD	2021-12-03	
	DESIGNED	HJ	
	PREPARED	HJ	
	REVIEWED	AH	
	APPROVED	JP	
PROJECT NO.	CONTROL	REV.	FIGURE
20450841	2000	0	2-1

Figure 2-1: Project Location

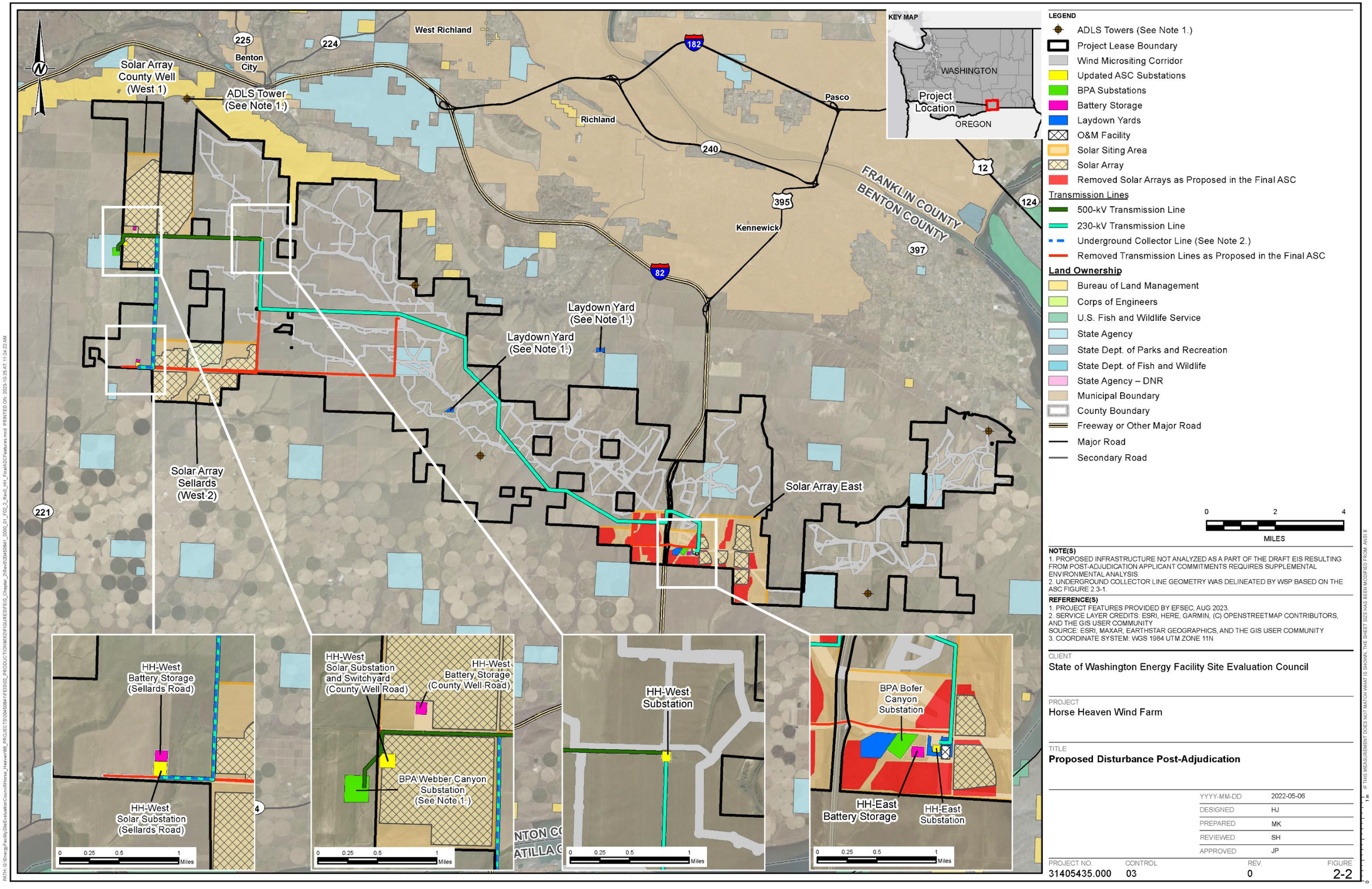


Figure 2-2: Proposed Disturbance

Much of the Project's Lease Boundary is privately owned; however, five Washington State Department of Natural Resources (DNR) parcels that are state trust lands fall within the Lease Boundary. Four of these parcels include proposed turbines and supporting facilities, and one could be crossed by the proposed transmission line and is a possible site for a Project solar component. Additionally, portions of the Lease Boundary may currently be enrolled in the U.S. Department of Agriculture's Conservation Reserve Program (CRP). Contracts for land enrolled in the CRP vary in length from 10 to 15 years (USDA n.d.). At the time of the Applicant's ASC, some lands within the Lease Boundary were enrolled in the CRP, but it is possible that CRP enrollment status may change between the time of the Applicant's ASC, the Draft EIS, and the Final EIS. The Project would be located on land designated as agricultural per the Growth Management Act as part of the Benton County Comprehensive Plan and outside any Urban Growth Area (Benton County 2022).

The Applicant's Final ASC seeks authorization for up to 231 turbine locations and a maximum of two solar arrays, with all possible turbine and solar array locations cumulatively reviewed to analyze potential resource impacts. Fewer turbines and solar arrays may be constructed for the Project and still achieve the nameplate generating capacity.

The maximum number of turbines and maximum turbine height carried forward for analysis as components of the Proposed Action are reflected in Turbine Option 1 and Turbine Option 2, as summarized in **Table 2-1**. Option 1 is shown in **Figure 2-3**, and Option 2 is shown in **Figure 2-4**. The final number and location of turbines within the proposed Wind Energy Micrositing Corridor would reflect the final engineering design, model selection, and any additional avoidance and mitigation identified in this EIS. The specific model used would depend on the commercial availability and technology at the time of construction. The number of turbines would not exceed 231, and the maximum turbine height (at blade tip) would not exceed 671 feet. This EIS assumes that the road disturbance associated with Turbine Option 1 and Turbine Option 2 would be identical. The Applicant would be required to site turbines within the Wind Energy Micrositing Corridor, to ensure that the Project's disturbance footprint does not exceed that allowed for in the site certification agreement (if approved) and to satisfy all pre-construction conditions.

Table 2-1: Proposed Action - Wind Turbines

	Turbine Option 1	Turbine Option 2
Wind Turbines	231 turbines up to a maximum blade tip height of 499 feet[(a)]	147 turbines up to a maximum blade tip height of 671 feet[(a)]
Temporary Disturbance	1,014 acres[(b)]	
Permanent Disturbance	28 acres[(c)]	
Lease Boundary	72,428 acres	

Source: Table 2.1-1 and Table 2.3-1 of the Final ASC, Horse Heaven Wind Farm, LLC 2023
Note:

(a) As proposed in the Final ASC, the presented value reflects the reduction in turbines from 244 turbines to 231 turbines for Option 1 and 150 to 147 for Turbine Option 2 (Horse Heaven Wind Farm, LLC 2023).

(b) As proposed in the Final ASC, the acreage reflects the reduction in turbines from 1,070 acres of temporary disturbance to 1,014 acres of temporary disturbance (Horse Heaven Wind Farm, LLC 2023).

(c) This value, specific to turbine-only disturbance, does not include supporting infrastructure, which is identified in Table 2-2 of this EIS. As proposed in the Final ASC, the acreage reflects the reduction in turbine disturbance from 30 acres of permanent disturbance to 28 acres of permanent disturbance (Horse Heaven Wind Farm, LLC 2023).

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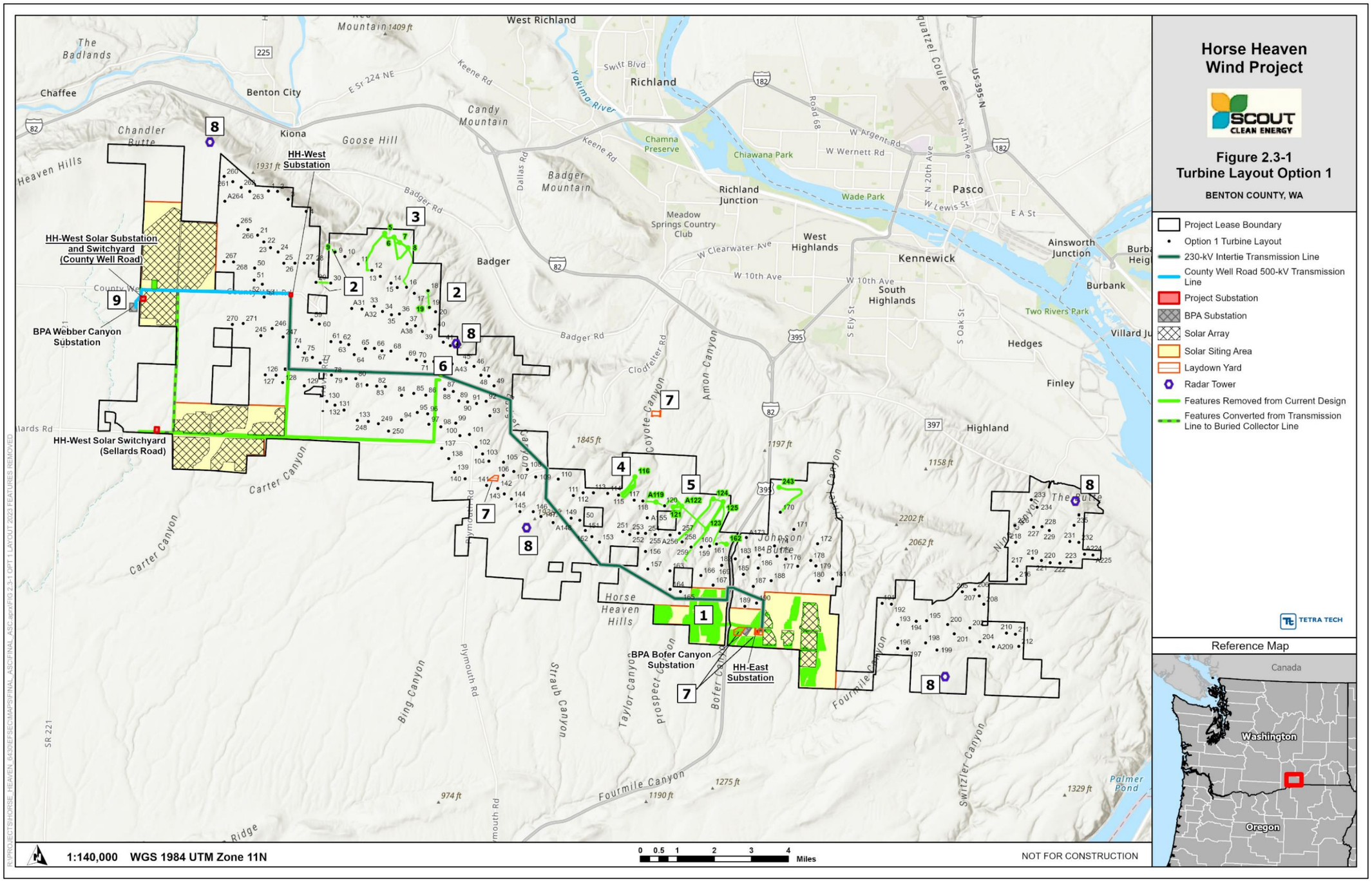
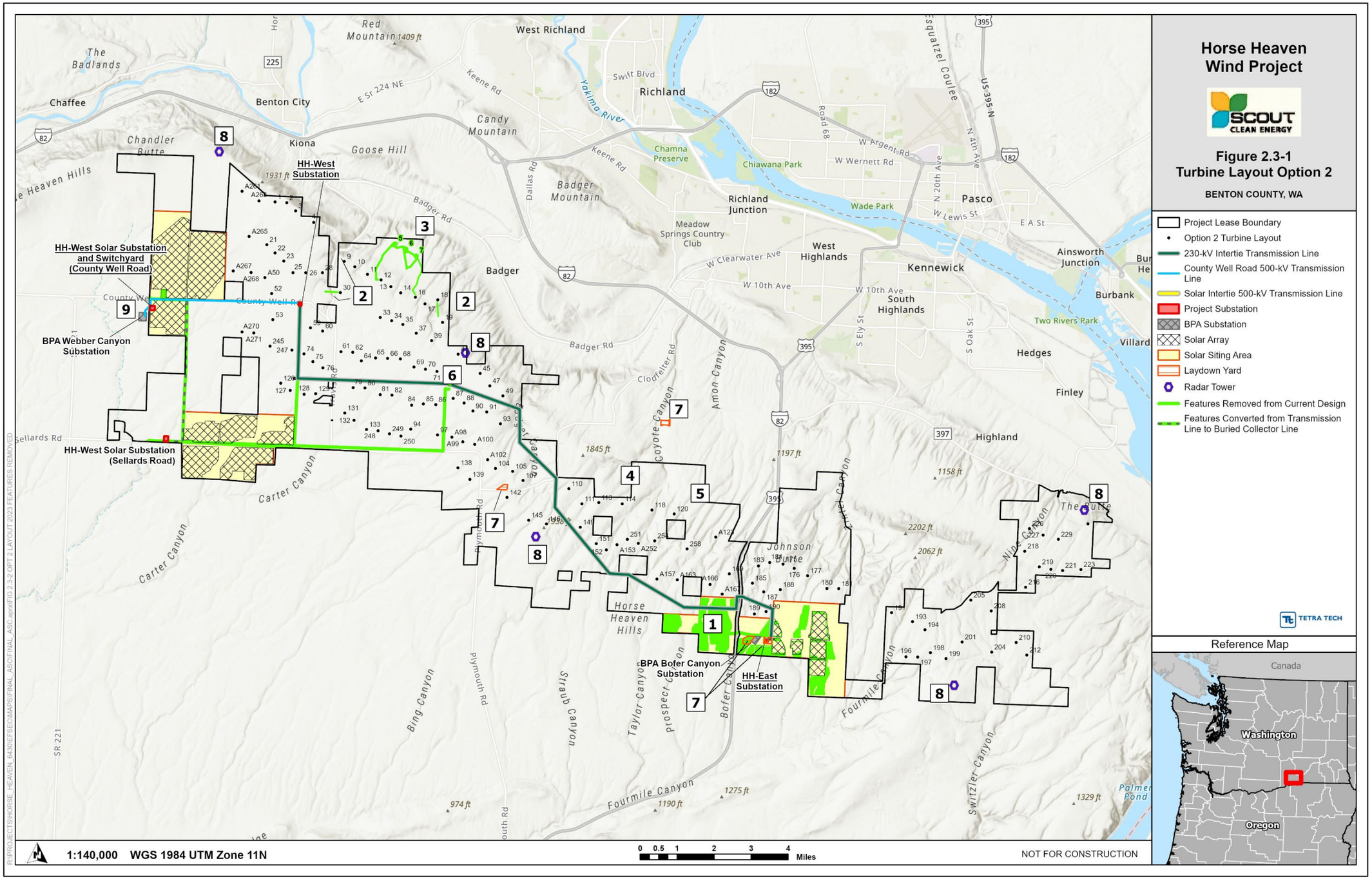


Source: Horse Heaven Wind Farm, LLC 2023

Figure 2-3: Turbine Layout - Option 1



Source: Horse Heaven Wind Farm, LLC 2023
Figure 2-4: Turbine Layout - Option 2

The wind energy components would be combined with the solar arrays, BESS, and other infrastructure supporting solar and wind energy and are summarized in **Table 2-2**. The disturbance, including supporting infrastructure, would only occur within the disturbance areas analyzed in the Draft EIS. The disturbance associated with the Project, as proposed in the Final ASC, would not total more than 2,660 acres of temporary disturbance and 5,447 acres of permanent disturbance (Table 2.1-1, Horse Heaven Wind Farm, LLC 2023). The combination of components selected would not have a greater disturbance footprint than allowed for in the site certification agreement (if approved) and must satisfy all pre-construction conditions.

The EIS describes potential impacts specific to each proposed turbine option, solar array, substation, and BESS where the information was available in the ASC and supporting documents for individual components. Potential impacts related to the Project's components are generalized for the analysis of the Proposed Action when impacts are common within the Micrositing Corridor or Solar Siting Areas.

Table 2-2: Proposed Action - Solar Siting and Supporting Infrastructure for Wind and Solar Facilities

	Temporary Disturbance (acres)	Permanent Disturbance (acres)
Solar Arrays in Fields		
East Solar Field[a]	12	639
County Well Solar Field	18	2,641
Sellards Solar Field	22	1,935
Total Disturbance Acreage of Solar Arrays in Fields	**52**	**5,215**
BESS[a][b]		
BESS adjacent to the Bofer Canyon - HH-East Substation	1	16
BESS adjacent to the Primary HH-West Step-Up Substation		
BESS adjacent to the Alternate HH-West Step-Up Substation		
Substations[a]		
HH-East Substation	1.9	27
HH-West Substation		
HH-West Solar Substation and Switchyard		
~~Primary HH-West Step-Up Substation~~[c]		
HH-West Solar Switchyard		
Supporting Infrastructure[a]		
Roads,[d] Crane Paths, Laydown Yards,[e] O&M Facilities, Met Towers	580.8[f]	185.5
Collector Lines		
Overhead	0.5[f]	<0.01
Underground	787[f]	0.06
Transmission Lines		
230 kV	235	0.02
500 kV	12[f]	<0.01
Total Disturbance Acreage of Supporting Infrastructure	**1,618.2**	**228.6**

Source: Table 2.1-1 of the Final ASC, Horse Heaven Wind Farm, LLC 2023

Notes:

For new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization. The proposed disturbance for these components has been omitted from analysis within this EIS.

[a] Acreage reflects the disturbance proposed in the Final ASC, where warranted, and may be different than what was analyzed in the Draft EIS (Horse Heaven Wind Farm, LLC 2023). EFSEC has identified new and unevaluated components in the Applicant's Final ASC, that have been omitted from this analysis.

[b] The Applicant provided three locations for consideration of constructing the two BESS.

[c] Removed in the Final ASC.

[d] Includes new access roads and road modification (turning radius widening). This EIS assumes that road disturbance would be identical under both Option 1 and Option 2.

[e] In the Applicant's Final ASC, a third laydown yard was proposed to the north and outside of the Project Lease Boundary and the western laydown yard was proposed outside of the Micrositing Corridor, outside of previously analyzed proposed disturbance.

[f] Additional disturbance was proposed in the Applicant's Final ASC. Calculations of specific elements, omitting newly proposed disturbance, were completed independently using the spatial layers provided by the Applicant (Horse Heaven Wind Farm, LLC 2023). Newly proposed disturbance has been omitted from analysis within this EIS.

ASC = Application for Site Certification; BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; HH = Horse Heaven; kV = kilovolt; met tower = meteorological tower; O&M = operations and maintenance

The temporary and permanent disturbances, calculated independently using spatial data provided by the Applicant, are provided for the Wind Energy Micrositing Corridor for Turbine Option 1 and Solar Siting areas in **Table 2-3**. Temporary and permanent disturbance acreage was not provided for Turbine Option 2 in the ASC. Turbine Option 2 includes fewer turbines within the same corridors as Turbine Option 1, and the requirements for roads and collector lines for Turbine Option 2 are expected to be similar to or less than the requirements for Turbine Option 1. Therefore, the temporary and permanent disturbance acreage for Turbine Option 1 is conservatively used as an upper bound for expected disturbance from Turbine Option 2. Disturbance includes the supporting infrastructure required for each component.

Table 2-3: Temporary and Permanent Disturbance for Turbine Option 1 and Solar Siting Areas

Habitat Type	Micrositing Corridor (Turbine Option 1)		Solar Siting Areas	
	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Temporary Disturbance (acres) [(a)]	Permanent Disturbance (acres)
Agriculture Land	2,263.9	391.2	200.6	5,032.0
Developed/Disturbed	19.3	1.5	3.5	<0.1
Grassland	411.1	40.2	32.6	146.7
Shrubland	185.3	43.8	46.6	75
Total	**2,879.6[(b)]**	**476.7[(b)]**	**283.3[(b)]**	**5,253.7[(b)]**

Note: Acreage calculations were completed independently using the spatial layers provided by the Applicant (Horse Heaven Wind Farm, LLC 2021, 2023). A detailed breakdown of disturbance by habitat is provided in Table 4.5-5 of this EIS.

(a) Updated spatial layers for temporary disturbance were not provided for the Final ASC, therefore, the acreage remains the same as previously provided by the Applicant in their 2021 spatial layers (Horse Heaven Wind Farm, LLC 2021).

(b) Areas of overlap between temporary and permanent disturbance are only counted toward permanent disturbance. The sum of the acres within disturbance areas of the Micrositing Corridor and Solar Siting Areas will not equal the disturbance of the comprehensive Project due to overlapping areas.

2.1.2 Project Construction, Operation, and Decommissioning Activities

Three stages would occur if the Project were authorized:

- Construction (including pre-construction)
- Operation
- Decommissioning

Chapter 4 presents the analysis of impacts for each of the three Project stages concerning the elements of the environment identified in Chapter 3. This analysis is largely based on information provided in the Project's 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and supporting documents, additional information obtained from publicly available sources, and communications with stakeholders, including other agencies and tribes.

For this EIS, an additional section has been added for each resource analyzed in Chapter 4 to address the changes the Applicant provided to the Final ASC. This section can be found after the section summarizing EFSEC-proposed mitigation, in each Chapter 4 resource section. The Applicant provided changes in the Final ASC following comments and input from regulatory agencies, changes to applicable regulations, testimony from

adjudicative hearings, and information received from the BPA. Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023).

2.1.2.1 Project Construction

Before construction could commence, a site survey would be performed during the micrositing process to stake out the final locations of the turbines, solar arrays, site roads, electrical cables, transmission line poles, access entryways, substations, BESS, and other supporting infrastructure. Once the survey is complete, the following would occur:

- Detailed geotechnical investigation
- Installation of stormwater pollution prevention measures
- Flagging of sensitive areas to be avoided during clearing activities
- Completion of any pre-construction surveys required by EFSEC or applicable regulatory agencies

The Applicant would also complete all required resource surveys within any unsurveyed portions of the proposed Project for supplemental analysis by EFSEC prior to the commencement of construction. Next, construction would be performed in several steps and would include the following main elements and activities:

- Grading the field construction office area (also used for operations and maintenance [O&M] facilities)
- Constructing site roads, turnaround areas, and 36-foot-wide crane paths
- Constructing the turbine tower foundations and transformer pads
- Assembling and erecting the turbines
- Installing the electrical collection system – underground and some overhead lines
- Constructing the foundations and installing the posts and tracking system for the solar arrays
- Assembling the solar arrays
- Constructing and installing the substations
- Assembling the BESS
- Erecting the security fence around the solar arrays, substations, and O&M facilities
- Plant commissioning and energization

Construction material and equipment would be transported to the site primarily via road systems. The primary transportation route would follow Interstate 82 (I-82) before reaching local and county roads that lead into the Project's Lease Boundary. Section 4.14 discusses the effects of improvements to the road systems required to transport construction materials and equipment. Up to two[6] laydown yard areas[7] would be established within the

[6] In the Applicant's Final ASC, a third laydown yard was proposed to the north and outside of the Project Lease Boundary.

[7] The eastern laydown yard is non-contiguous and would be located on agricultural land east of I-82 within the identified siting areas analyzed for impacts, while the western laydown area would be located on agricultural land outside of analyzed areas.

Lease Boundary to facilitate the delivery and assembly of materials and equipment.[8] Equipment typically used in the construction of wind and solar facilities is listed in **Table 2-4**.

Table 2-4: Construction Equipment

Type of Equipment	Construction Use
Heavy Vehicles	
Bulldozer (medium)	Access road and driveway leveling
Scraper	Access road and driveway leveling
Drum Compactor	Compacting
Skid Steer Loader	Light soils work for slabs and foundations
Road Grader	Access road and driveway leveling
Excavator	Trenching and foundations
Trenching Equipment/Cable Plows	Trenching
Backhoe Loader	Moving materials
Tracked Pile Driver	Driving piles into ground
Cable Reel Truck	Dispensing cable
Concrete Pump Truck	Delivering concrete
Mobile Hydraulic Crane/Truck-mounted Crane	Moving materials
2,000 kW Generators	Turbine commissioning
Load Banks	Turbine commissioning
Large Crawler Crane	Moving materials
Water Trucks	Dust control
Fuel Trucks	Refueling equipment
Non-heavy Vehicles	
Forklifts/Telehandler	Moving materials, loading and unloading of trucks
Personnel Transport Vehicles	Transporting workers
Other Material Handling Equipment	Moving materials
Service Trucks	Maintaining heavy equipment
Other Equipment	
Disposal Containers	Disposing of and removing construction debris
Other General Industrial Equipment	Assembling structures
Plate Compactors/Jumping Jacks	Compacting soil for concrete slabs and foundations
Pressure Washers	Cleaning
Storage Containers	Storing on-site materials
Welders	Assembling structures
Air Compressors	Miscellaneous maintenance

Source: Table 4.3-6, Horse Heaven Wind Farm, LLC 2023
kW = kilowatt

[8] For the third laydown yard and western laydown yard to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization.

Turbines

The Applicant would construct up to 231 turbines within the Wind Energy Micrositing Corridor. Wind turbines are composed of three major components: the tower, the nacelle (the housing for electrical and mechanical structures that sits atop the tower), and the blades. The tubular towers proposed for the Project would be conical steel structures or a combination of steel and concrete, depending on final turbine selection. Each tower would have a lockable access door, internal lighting, and an internal ladder and lift to access the nacelle. The towers would be painted off-white per Federal Aviation Administration (FAA) regulations. Turbine blades, composed of laminated fiberglass and carbon fiber, would be attached to the rotor hub mounted to the nacelle's front. Aviation lighting would be mounted on turbine nacelles per FAA requirements. Each turbine tower is secured to a foundation, typically of reinforced concrete, spread-foot style design. Each tower's actual foundation type and design may differ depending on the on-site geotechnical studies and in-situ soil properties.

Solar Facilities

The major components of the proposed solar energy generation systems are solar modules, tracking systems, posts, and related electrical equipment. The Applicant would construct solar arrays within the Solar Siting Areas. Three potential Solar Siting Areas are analyzed:

- East Solar Siting Area, located on the east side of the Lease Boundary near Bofer Canyon
- County Well Solar Siting Area, located on the west side of the Lease Boundary near County Well Road
- Sellards Solar Siting Area, located on the west side of the Lease Boundary near Sellards Road

A 6-foot-tall security fence would enclose the solar arrays constructed in these siting areas. To calculate impacts, it is assumed that all acreage (up to 5,447 acres, a summation of permanent acreage included in **Table 2-2**) within the fenced area would be permanently impacted by the construction and operation of the solar arrays.

Battery Energy Storage Systems

Up to two BESS would be constructed. Each would consist of a series of containers and would be placed adjacent to the substations, enclosed by a separate fence. Each BESS would be capable of storing and later deploying energy generated by the Project using lithium-ion batteries. The BESS would help provide consistent and predictable power to the grid—for example, by minimizing short-term fluctuations in power generation from solar arrays. The details for the BESS would depend on the final system selected. Each BESS would include, but not be limited to, the following components:

- Battery storage equipment, including batteries and racks or containers, inverters, isolation transformers, and switchboards
- Plant equipment, which may include medium-voltage and low-voltage electrical systems
- Fire suppression
- Heating, ventilation, and air conditioning systems
- Building auxiliary electrical systems
- Network/supervisory control and data acquisition (SCADA) systems

- Cooling system, which may include a separate chiller plant located outside the battery racks with chillers, pumps, and heat exchangers
- High-voltage (HV) equipment, including a step-up transformer, HV circuit breaker, HV current transformers and voltage transformers, a packaged control building for the HV breaker and transformer equipment, HV towers, structures, and HV cabling

These components are commonly placed in standard-sized shipping containers on a concrete slab. By connecting multiple containers, the BESS can be scaled to the desired capacity. Containers may be stacked up to two levels high, with an estimated maximum height of approximately 40 feet above grade.

Substations

This EIS analyzes the impacts of the construction of substations at five locations, including alternate locations. Up to four substations would be constructed for the Project. **Table 2-5** summarizes the five substation locations and their purposes. Two of the substations would be co-located with the Project's O&M facilities. Each substation would permanently occupy a 4-acre site enclosed within a security wire mesh fence and consist of the following:

- Substation transformers
- Circuit breakers
- Switching devices
- Auxiliary equipment
- A control enclosure
- Other associated equipment and facilities

The area within the Project substations' fence lines would be graded/flattened and contain a bed of crushed rock.

Table 2-5: Substation Descriptions

Project Region	Substation Name	Purpose
Eastern Project Area	HH-East Substation	Connects the eastern portion of the Project to the grid via the existing 230-kV BPA transmission line.
Western Project Area	HH-West Substation[a]	A substation that would step up the voltage of the 34.5-kV wind energy collection system to 500 kV.
	HH-West Solar Substation and Switchyard (County Well Road)[b]	A substation located adjacent to the County Well Road solar array that would step-up the voltage of the 34.5kV collection system from the western solar arrays to 500kV.
	HH-West Solar Switchyard (Sellards Road)[c]	A switchyard located adjacent to the Sellards Road solar array that would collect the power generated by the Solar array from the 34.5 kV collection system for transmission to the HH-West Solar Substation at County Well Road.
	~~HH-West Intermediate Substation (Primary – Badger Canyon Road)~~[d]	~~An intermediate western substation, connected to the electrical collection system, would step up the voltage of the 34.5-kV collection system to 230 kV before sending the power to the secondary substation.~~

Source: Table 2.3-2, Horse Heaven Wind Farm, LLC 2023
Notes:
[a] Previously known within the Draft EIS as the HH-West Intermediate Substation [Alternate County Well Road
[b] Previously known within the Draft EIS as the HH-West Step-Up Substation 500 kV (Alternate County Well Road)
[c] Previously known within the Draft EIS as the HH-West Step-Up Substation 500 kV (Primary – Sellards Road)
[d] Location removed from the Final ASC (Horse Heaven Wind Farm, LLC 2023)
ASC = Application for Site Certification; BPA = Bonneville Power Administration; HH = Horse Heaven; kV = kilovolt; O&M = operations and maintenance

For purposes of analysis, with the exception of analyses for transportation, socioeconomics, and air impacts, this Final EIS conservatively assumes impacts from construction and operation of substations at the five potential locations analyzed in the Draft EIS.

Supporting Infrastructure

Supporting infrastructure includes existing roadway improvements and new roads, crane paths, laydown yards, O&M facilities, meteorological towers (met towers), collector lines, transmission lines, and any SCADA and communication systems. The Final ASC identified up to approximately 30.4 miles of 36-foot-wide crane paths that would be constructed between turbine locations (Table 2.1-1, Horse Heaven Wind Farm, LLC 2023). Crane paths would be placed within the Micrositing Corridor.

Where necessary, existing public and private roads may be temporarily widened and the turning radii increased. New access roads would be constructed within the Micrositing Corridor between existing roadways and the Project's components. The permanent access roads would be all-weather, gravel surfaces, and generally 16 feet in width for the drivable area and additional width for the shoulder and drainage (if necessary).

The Project would require up to two O&M facilities, each of which would be located directly adjacent to the Project's substations. One O&M facility would be located adjacent to the Project's eastern substation, and a second would be located adjacent to one of the western Project substations. Each facility would comprise a one- or two-story building that would house operating personnel, offices, operations and communication equipment, parts storage and maintenance activities, and a vehicle parking area. An area for outdoor storage of larger

equipment and materials would also be included within the fenced area, permanently occupying approximately 4 acres.

Up to four permanent met towers would be installed as part of the Project. These met towers would be used to obtain wind data for performance management once the Project is operational. The final locations of the met towers would be within the Micrositing Corridor on land leased for the Project. The towers would be free-standing, with heights not to exceed the maximum hub height of the turbines (up to 411 feet). The permanent met towers would be marked and lighted as specified by the FAA. Construction of each met tower would temporarily disturb a 150-foot-radius area, and each tower and its foundation would occupy a permanent footprint of up to approximately 42 by 42 feet, for a total of 1,764 square feet for each tower.

Project Phasing

The Project may be built using a "phased approach"[9] with distinct, fully functional portions of the Project potentially being built and implemented sequentially. **Table 2-6** provides the Applicant's example of the phased construction approach that is considered in the analysis of air, transportation, and socioeconomics in Chapters 3 and 4. For all other elements of the environment analyzed in this EIS, the Project as a whole (reflecting the potential for all components to be built irrespective of the Applicant's phased construction approach) was analyzed.

[9] This EIS is not providing a phased, or tiered, review as defined by Washington Administrative Code 197-11-060(5)(b).

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Table 2-6: Example of Project Phasing

Project Components	Phases		
	Phase 1	**Phase 2 (Alternative A)**	**Phase 2 (Alternative B)**
Energy Generation	450 MW with 350 MW generated via wind (consisting of 58 to 124 turbines, depending on the turbine size selected, plus 100 MWac generated via solar (consisting of the eastern solar siting area)	500 MW, with 250 MW generated via wind (consisting of up to 89 turbines, depending on the turbine size selected), plus 250 MWac generated via solar (consisting of the western solar siting area adjoining the BPA Webber Canyon Substation)	500 MW generated via wind (consisting of up to 177 turbines, depending on the size selected)
BESS	100 MWac-coupled BESS (400 MW-hr) located at the HH-East Substation	200 MWac-coupled BESS (800 MW-hr) located at the HH-West Solar Substation and Switchyard (County Well Road)	
BPA POI Location	Bofer Canyon Substation	Webber Canyon substation	Webber Canyon substation
Project Substations	HH-East Substation	▪ HH-West Substation, which collects and steps up to 500 kV ▪ HH-West Solar Substation and Switchyard (County Well Road) (adjacent to BPA Webber Canyon Substation), which steps up to 500 kV ▪ HH-West Solar Switchyard (Sellards Road), which collects the power generated by the Solar array from the 34.5 kV collection system for transmission to the HH-West Solar Substation at County Well Road	HH-West Substation, collects and steps up to 500 kV
O&M Facilities	One O&M facility located directly adjacent to the HH-East Substation	One O&M facility located directly adjacent to the HH-West Substation	One O&M facility located directly adjacent to the HH-West Substation
Transmission	Up to 0.5 miles of 230 kV transmission line would be built during Phase 1. The HH-East Substation would be sited adjacent to BPA Bofer Canyon Substation.	▪ Up to 4.6 miles of 500 kV gen-tie from the HH-West Substation to the BPA Webber Canyon substation ▪ Up to 0.35 mile of 500 kV gen-tie from the HH-West Solar Substation and Switchyard (County Well Road) to the BPA Webber Canyon substation ▪ Up to 5.4 miles of 34.5 kV solar intertie, connects the Sellards Road Solar Array to HH-West Solar Substation and Switchyard (County Well Road)	Up to 19.4 miles of 230-kV intertie between the HH-East Substation and HH-West Substation
Transportation	I-82 to Coffin Road and Bofer Canyon Road; I-82 to Highway 397 to Nine Canyon Road and S. Finley Road, to Kirk Road and Beck Road and local farm roads and new Project access roads	▪ For solar components: I-82 to Wine Country Road, Frontier Road, Highway 221, County Well Road, Sellards Road, Webber Canyon Road, and Badger Canyon Road. ▪ For wind components: I-82 to Webber Canyon Road, Denis Road to Henson Road, E Badger Road, County Well Road to Henson and Clouds Road, Cemetery Road, S Clodfelter Road, and new Project access roads.	▪ No solar components proposed in this phase. ▪ For wind components, I-82 to Webber Canyon Road to Denis Road and Henson Road, E Badger Road, County Well Road, Cemetery Road, S Clodfelter Road, and new Project access roads.

Source: Table 2.15-1, Horse Heaven Wind Farm, LLC 2023
Notes: The air, transportation, and socioeconomic impact analyses of this EIS were developed based on the example phasing approach originally presented in this table (i.e., 650 MW for Phase 1 and 500 MW for Phase 2). This table provides the Applicant's example of the phased construction approach that is considered in the analysis of air, transportation, and socioeconomics in Chapters 3 and 4. For all other elements of the environment analyzed in this EIS, the Project as a whole (reflecting the potential for all components to be built irrespective of the Applicant's phased construction approach) was analyzed. This is a conceptual example and does not total the disturbance analyzed in Table 2-2 nor does it include analyzed haul routes completed for transportation as a part of this EIS. For new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization. New and unevaluated components have been omitted from analysis within this EIS.
ASC = Application for Site Certification; BESS = battery energy storage system; BPA = Bonneville Power Administration; gen-tie = generation tie; I-82 = Interstate 82; kV = kilovolts; MW = megawatts; MWac = megawatts of alternative current; MW-hr = megawatt hours; O&M = operations and maintenance; POI = point of interconnection

2.1.2.2 Project Operation

The Project is anticipated to have an operating life of up to 35 years, which may be extended by repowering (Horse Heaven Wind Farm, LLC 2023). An on-site operations team of up to 20 personnel would be employed at the Project to operate and maintain Project components. The team would perform scheduled preventative maintenance on the turbines, solar modules, BESS, and any support infrastructure. The on-site team would coordinate with off-site operations staff at a Remote Operation Control Center in accordance with Federal Energy Regulatory Commission guidelines. The off-site team would assist in identifying Project components operating at non-peak efficiency and help on-site staff quickly locate potential operating issues.

Project operations would require water for solar panel washing and limited needs at the O&M facilities. Solar modules require little routine maintenance but would be washed periodically during operations, requiring an estimated 2,025,000 gallons of water annually for all three Solar Siting Areas. In addition, no more than 5,000 gallons of water a day are estimated to be needed for consumption and domestic use for kitchen and washroom facilities at the O&M facilities (Horse Heaven Wind Farm, LLC 2023).

The Project is expected to generate approximately one or two dumpsters of solid, non-hazardous waste per week at the O&M facilities (Horse Heaven Wind Farm, LLC 2023). All waste would be stored within designated temporary waste collection areas until it is collected for transport to an approved landfill. Materials that can be recycled would be stored and transported separately.

2.1.2.3 Project Decommissioning

The Applicant would comply with WAC 463-72, Site Restoration and Preservation requirements. The Applicant submitted a preliminary Decommissioning Plan with the ASC for EFSEC's review and would submit an initial Site Restoration Plan to EFSEC at least 90 days before the beginning of construction. Upon Project decommissioning, the Applicant would restore occupied land for agricultural use or as consistent with zoning requirements and landowner agreement and would remove all aboveground infrastructure and belowground infrastructure to 3 feet or more below grade. The Applicant would replace topsoil and areas where concrete pads were located would be reseeded with native grasses and other vegetation approved by the landowner(s). Financial assurance would remain in place until decommissioning is completed to the satisfaction of EFSEC.

2.1.3 Applicant Commitments

The Applicant has committed to specific measures during the Project's Pre-Construction, Construction, Operation, and Decommissioning Stages. Applicant-committed measures presented in Section 1.10 of the Final ASC and taken into consideration in the characterization of potential impacts in each resource impact analysis (provided in Chapter 4) are summarized below. Some Applicant-committed measures may be existing requirements in rule or law. The requirements that were listed by the Applicant in Section 1.10 of the Final ASC are included here. Elements of the environment analyzed in Chapter 4 may have additional Applicant commitments from other Applicant-supplied plans, reports, or Project material. Additional Applicant commitments, if considered during the analysis of impacts, are provided in each element's analysis in Chapter 4. No Applicant-committed measures were proposed for wetlands, energy and natural resources, or light and glare; however, commitments for other elements of the environment (described in Chapters 3 and 4) may have aspects that provide protection for these resources.

Agency-recommended mitigation measures are provided in Chapter 4 for each element of the environment. A high-level summary of agency-recommended mitigation measures is also provided in the executive summary of this EIS.

2.1.3.1 Earth Resources

The following commitments are proposed by the Applicant and described in detail in Section 3.1 of the ASC.

- The Project would comply with the National Pollutant Discharge Elimination System through pursuance of a Construction Stormwater General Permit.
- A Temporary Erosion and Sediment Control Plan (TESC Plan) would be developed and implemented, detailing specific best management practices (BMPs) that would be used and where they would be placed, as well as the total disturbance area. The TESC Plan includes measures to prevent erosion, contain sediment, and control drainage. The TESC Plan would also include installation details of the BMPs.
- A Stormwater Pollution Prevention Plan would be required, detailing the activities and conditions at the site that could cause water pollution and the steps the facility would take to prevent the discharge of any unpermitted pollution.
- A stabilized construction entrance/exit would be installed at locations where construction vehicles would access newly constructed roads and/or disturbed areas from paved roads. The stabilized construction entrance and exits would be inspected and maintained for the duration of the Project's lifespan.
- Clearing, excavation, and grading would be limited to the parts of the Project area where these activities are necessary for construction and decommissioning of the Project. Areas outside the disturbance limits would be marked in the field, and equipment would not be allowed to enter these areas or disturb existing vegetation. To the extent practicable, existing vegetation would be preserved. Where vegetation clearing is necessary, root systems would be conserved if possible.
- Vegetated areas that are disturbed or removed during construction and decommissioning would be restored as near as reasonably possible to pre-disturbance conditions.
- Excavated soil and rock from grading would be spread across the site to the natural grade and would be reseeded with native grasses to control erosion by water and wind.
- Silt fencing would be installed throughout the Project as a perimeter control, and on the contour downgradient of excavations, the O&M facilities, and substations.
- Straw wattles would be used to decrease the velocity of sheet flow stormwater to prevent erosion. Wattles would be used along the downgradient edge of access roads adjacent to slopes or sensitive areas.
- Mulch would be used to immediately stabilize areas of soil disturbance, and during reseeding efforts.
- Jute matting, straw matting, or turf reinforcement matting would be used in conjunction with mulching to stabilize steep slopes that were exposed during access road installation.
- Soil binders and tackifiers would be used on exposed slopes to stabilize them until vegetation is established.
- Concrete chutes and trucks would be washed out in dedicated areas near the foundation construction locations. This would prevent concrete washout water from leaving a localized area. Soil excavated for the concrete washout area would be used as backfill for the completed footing.
- To facilitate installation of the turbine footings, large excavations would be created. Soil from these excavations would be temporarily stockpiled and used as backfill for the completed footing. Silt fencing

would be installed around the stockpile material as a perimeter control. Mulch or plastic sheeting would be used to cover the stockpiled material. Soils would be stockpiled and reused in order to prevent mixing of productive topsoils with deeper subsoils.

- After construction and decommissioning are each completed, the site would be revegetated with an approved seed mix. When required, the seed would be applied in conjunction with mulch and/or stabilization matting to protect the seeds as the grass establishes. Revegetation would take place as soon as site conditions and weather allow following construction and decommissioning.
- If water crossings are needed, check dams and sediment traps would be used during the construction of low-impact ford crossings or culvert installations. The check dams and sediment traps would minimize downstream sedimentation during construction of the stream crossings.
- During construction and operation, source control measures would be identified in the Spill Prevention, Control, and Countermeasures (SPCC) Plan to reduce the potential of chemical pollution to surface water or groundwater during construction.
- To the extent practicable, construction activities would be scheduled to occur in the dry season, when soils are less susceptible to compaction. Similarly, soil disturbance should be postponed when soils are excessively wet such as following a precipitation event.
- Equipment oil-filling, fueling, or maintenance activities would take place a substantial distance from waterways or wetlands to prevent water quality impacts in the event of an accidental release. Any oily waste, rags, or dirty or hazardous solid waste would be collected in sealable drums at the construction yards, to be removed for recycling or disposal by a licensed contractor.
- All structures would be built in accordance with current code requirements and state-of-practice methods to limit potential for issues from slope instability/topography, liquefaction, and geologic hazards, including seismic events.

Agency-recommended mitigation measures are provided in Section 4.2 of this EIS.

2.1.3.2 Air

The following commitments are proposed by the Applicant and described in detail in Section 3.2 of the ASC.

- Construction and operations vehicles and equipment would comply with applicable state and federal emissions standards.
- Vehicles and equipment used during construction would be properly maintained to minimize exhaust emissions.
- Operational measures such as limiting engine idling time and shutting down equipment when not in use would be implemented.
- Watering or other fugitive dust-abatement measures would be used as needed to control fugitive dust generated during construction.
- Construction materials that could be a source of fugitive dust would be covered when stored.

- Traffic speeds on unpaved roads would be limited to 25 miles per hour to minimize generation of fugitive dust.
- Truck beds would be covered when transporting dirt or soil.
- Carpooling among construction workers would be encouraged to minimize construction-related traffic and associated emissions.
- Erosion-control measures would be implemented to limit deposition of silt to roadways, to minimize a vector for fugitive dust.
- Replanting or graveling disturbed areas would be conducted during and after construction to reduce wind-blown dust.

Agency-recommended mitigation measures are provided in Section 4.3 of this EIS.

2.1.3.3 Water

- The following commitments are proposed by the Applicant and described in detail in Section 3.3 of the ASC. Water conservation would be implemented to the extent practicable by use of less water-intensive methods of dust suppression when possible, including use of soil stabilizers, tightly phasing construction activities, staging grading and other dust-creating activities, and/or compressing the entire construction schedule to reduce the time period over which dust suppression measures would be required.
- Impacts on waters of the state may be avoided by spanning (e.g., with the transmission line) or otherwise micrositing away from the streams. If these impacts cannot be avoided, indirect impacts on water quality can be minimized by working within the ordinary high-water line during the dry season when no rain is predicted.
- To control erosion and surface-water runoff during construction and operation, the Applicant would comply with a Construction Stormwater General Permit.
- A Stormwater Pollution Prevention Plan meeting the conditions of the Construction Stormwater General Permit for Construction Activities would be prepared and implemented prior to construction and again during decommissioning.
- All final designs would conform to the applicable Stormwater Management Manual.
- An SPCC Plan would be prepared to prevent discharge of oil into navigable waters.

The Applicant has not proposed any commitments specific to wetlands because no wetlands are present within the Project's Micrositing Corridor or Solar Siting Areas. Agency-recommended mitigation measures are provided in Section 4.4 of this EIS.

2.1.3.4 Habitat, Vegetation, Fish, and Wildlife

The following commitments are proposed by the Applicant and described in detail in Section 3.4 of the ASC.

- To minimize impacts on wildlife, baseline studies were conducted for the Project consistent with the following guidance:
  - Washington Department of Fish and Wildlife (WDFW) Wind Power Guidelines (WDFW 2009)

  - U.S. Fish and Wildlife Service's (USFWS) 2012 Final Land-Based Wind Energy Guidelines (USFWS 2012)
  - 2013 USFWS Eagle Conservation Plan Guidance Module 1 – Land Based Wind Energy (USFWS 2013)
  - USFWS 2016 Eagle Rule Revision (USFWS 2016)
- Project facilities were sited on previously disturbed (e.g., cultivated cropland) areas to the extent feasible to avoid impacts on native habitats and associated wildlife species.
- The Project would use industry standard BMPs to minimize impacts on vegetation, waters, and wildlife.
- The Project was sited outside of wetlands and waters to the extent feasible to avoid and minimize impacts on these resources, as described in Section 3.3 and Section 3.5 of the ASC, which would also avoid impacts on fish and minimize impacts on wildlife species that use these habitats.
- If the final design results in impacts on waters of the state that cannot be avoided, the Applicant would work with EFSEC and WDFW to determine whether a Hydraulic Project Approval is required and would prepare an application accordingly.
- During construction, WDFW-published seasonal buffers (per Larsen et al. 2004) for ferruginous hawk nests would be observed to avoid disturbing nesting ferruginous hawks. Brief human access and intermittent ground-based activities should be avoided within a distance of 250 meters (820 feet) of nests during the hawks' most sensitive period (March 1 to May 31). Prolonged activities (0.5 hour to several days) should be avoided, and noisy, prolonged activities should not occur, within 1 kilometer (0.6 mile) of nests during the breeding season (March 1 to August 15).
- During construction, WDFW-published seasonal buffers (per Larsen et al. 2004) for burrowing owl nests would be observed to avoid disturbing nesting burrowing owls, if present. If impacts on potentially suitable habitat cannot be avoided during final design, the Applicant would consult with WDFW regarding the need for burrowing owl surveys prior to construction, including surveys to determine habitat suitability for burrowing owls, and surveys for breeding owls if suitable habitat is present.
- The Applicant would minimize bird and bat collisions with Project infrastructure by implementing down-shield lighting (e.g., for permanent lighting at the substations and O&M facilities) that would be sited, limited in intensity, and hooded in a manner that prevents the lighting from projecting onto any adjacent properties, roadways, or waterways; lighting would be motion activated where practical (i.e., excluding security lighting).
- All permanent met towers would be unguyed to minimize collision risk for wildlife.
- The Applicant would acquire any required federal approvals as described in Section 2.23 of the ASC. The Applicant would continue ongoing coordination with the USFWS (Matthew Stuber, Eagle Coordinator, Columbia Pacific Northwest Region) regarding an eagle take permit for incidental take of bald and golden eagles and would continue to evaluate eagle risk to determine if an eagle take permit is appropriate considering the use of the Project area by bald and golden eagles.
- Sagebrush shrub-steppe habitat would be avoided to the extent possible. If avoidance is not possible, mitigation for impacts on sagebrush shrub-steppe habitat would be developed in consultation with the applicable agencies.

- If special status plant species are observed during pre-construction surveys, individuals and populations would be avoided to the extent possible. If avoidance is not possible, mitigation measures for impacts would be developed in consultation with the applicable agencies.
- Following construction, temporarily disturbed areas would be revegetated with native or non-invasive, non-persistent non-native plant species as described in the Revegetation and Noxious Weed Management Plan (Appendix N of the ASC).
- The Applicant does not anticipate using pesticides during Project construction or operation. If unforeseen circumstances arise that require the use of pesticides, the Applicant would consult with WDFW and EFSEC regarding use of pesticides to avoid and minimize impacts on burrowing owl (per Larsen et al. 2004).
- The Applicant would limit construction disturbance by flagging any sensitive areas (e.g., wetlands, rare plant populations) and would conduct ongoing environmental monitoring during construction to ensure flagged areas are avoided.
- The Applicant has prepared a Bird and Bat Conservation Strategy that describes the surveys conducted, avoidance and minimization, and potential impacts on birds and bats and their habitat as a result of construction and operation of the Project (Appendix M of the ASC).
- The Applicant would conduct two years of standardized post-construction fatality monitoring to assess impacts of turbine operation on birds and bats. Proposed post-construction fatality monitoring is described in the Applicant's Bird and Bat Conservation Strategy (Appendix M of the ASC). The Applicant would also conduct five years of post-construction raptor nest monitoring, with specific emphasis on determining whether documented ferruginous hawk nests are active.
- The Applicant developed a Habitat Mitigation Plan (Appendix L of the ASC) for the wind energy generation areas of the Project, consistent with the WDFW Wind Power Guidelines, where applicable (WDFW 2009). The Habitat Mitigation Plan separately addressed mitigation for the solar and battery storage facility elements, consistent with best available industry practices.
- The turbine layouts presented in the Final ASC feature a reduction in the total number of turbines (reduced from the previous maximum of 244 turbines to the current maximum of 231 turbines for Option 1, and reduced from the previous 150 turbines to the current maximum of 147 turbines for Option 2). In addition, solar panels in proximity to I-82 have been removed, such that all panels would be approximately 1 mile east of I-82.

Agency-recommended mitigation measures are provided in Section 4.6 of this EIS.

2.1.3.5 Energy and Natural Resources

The Applicant has not proposed any new mitigation measures in Section 1.10 of the Final ASC. The Applicant does not anticipate that any new water rights will be necessary for the use of local off-site water sources. The Applicant anticipates that any necessary water volume mitigation for the impact would be provided in accordance with Washington State Department of Ecology guidelines from new or existing regional sources. Agency-recommended mitigation measures are provided in Section 4.4 of this EIS.

2.1.3.6 Noise and Vibration

The following commitments are proposed by the Applicant and described in detail in Section 4.1.1 of the ASC.

- Maintain all construction tools and equipment in good operating order according to manufacturers' specifications.
- Limit use of major excavating and earth-moving machinery to daytime hours (7 a.m. to 10 p.m.).
- To the extent practicable, schedule construction activity during normal working hours[10] on weekdays when higher sound levels are typically present and are found acceptable. Some limited activities, such as concrete pours, would be required to occur continuously until completion.
- Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks.
- For construction devices that utilize internal combustion engines, ensure that the engine's housing doors are kept closed and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible.
- Limit possible evening shift work to low noise activities such as welding, wire pulling, and other similar activities, together with appropriate material handling equipment.
- Utilize a complaint resolution procedure to address any noise complaints received from residents.
- For the Option 1 layout using 2.82-MW turbines, to demonstrate compliance with the applicable nighttime WAC regulatory limits (WAC 173-60-040) at the Project property boundary adjacent to Class A lands, select turbines would need to operate in noise-reduced operation mode. For the Option 1 layout using 3.03-MW turbines, select turbines may need to be equipped with low noise trailing edge or other noise-reducing technology.

Agency-recommended mitigation measures are provided in Section 4.11 of this EIS.

2.1.3.7 Public Health and Safety

The following commitments are proposed by the Applicant and described in detail in Section 4.1.2 of the ASC.

- All facilities will be designed per recommendations of the Institute of Electrical and Electronics Engineering Guide for Substation Fire Protection (979-2012) and the Unified Facilities Criteria (UFC) for Fire Protection Engineering for Facilities (UFC 3-600-01).
- During construction, trees and vegetation that pose a hazard to the collector lines may be topped or cleared from the right-of-way. During operation and maintenance of the Project, vegetation that is overgrown and could pose a hazard to the transmission line will be topped or cleared on an as-needed basis.
- Battery storage systems will include fire detection measures and would be installed according to the "remote, outdoor" installation requirements of National Fire Protection Association (NFPA) Standard 855, including vegetation control to prevent the spread of fire.

[10] The Applicant has identified normal working hours as the hours outside the limitations provided under WAC 173-60-040.

- Appropriate coordination with local emergency personnel will be conducted.
- Precautionary measures will be taken during construction to reduce fire risk.
- Construction equipment will be monitored where activities may present safety issues.
- A Draft Emergency Response Plan, which addresses fire and other emergency procedures, has been developed and included as part of the ASC (Appendix P of the ASC). A finalized plan would be developed and implemented, in coordination with the Benton County Fire Marshal and other appropriate agencies before construction.
- All Project vehicles will be equipped with fire extinguishers.
- Fire station boxes with appropriate fire suppression equipment (e.g., shovels, water tank sprayers, sand) will be installed at multiple locations within the Project.
- No gas-powered vehicles will be allowed outside of graveled areas.
- High clearance vehicles will be used onsite if required to be operated off-road. Low clearance vehicles with catalytic converters will not be parked in tall grasses.
- Any constructing personal required to handle explosives will be state-licensed explosive specialist contractors. All explosives will be secured onsite in compliance with federal, state, and local requirements.
- Areas directly surrounding Turbines and substations would be cleared of vegetation and graveled.
- All portable generators would be fitted with spark arrestors on the exhaust system, and not allowed to operate in open grass areas.
- Hazardous material storage, spill prevention, and waste handling BMPs will be implemented and utilized during construction and operation of the Project in compliance with the Construction Phase and an Operational Phase SPCC Plan.
- Agency-recommended mitigation measures are provided in Section 4.13 of this EIS.

2.1.3.8 Land-Use Plans and Zoning Ordinance

The following commitments are proposed by the Applicant and described in detail in Section 4.2.1 and/or Section 4.2.6 of the ASC.

- Project construction, operation, and decommissioning stages would follow site-specific BMPs to minimize potential impacts on noise, traffic, vegetation, and air quality, as described in the respective resource sections of the ASC.
- Upon decommissioning of the Project, the Applicant would remove all above-grade infrastructure, as well as belowground infrastructure to 3 feet or more below grade.
- The Applicant would replace topsoil and reseed areas where facilities were located with grasses and/or other vegetation reasonably acceptable to the landowner.
- Upon Project decommissioning, occupied land would be restored for agricultural use and the Applicant would remove all aboveground infrastructure as well as belowground infrastructure to 3 feet or more below grade.

Agency-recommended mitigation measures are provided in Section 4.8 of this EIS.

2.1.3.9 Visual Aspects, Light and Glare

The following are commitments proposed by the Applicant for visual aspects and described in detail in Section 4.2.3 of the ASC.

- Active dust suppression would be implemented during construction.
- Following completion of construction, temporarily disturbed areas (e.g., laydown yards, crane paths not used as Project access roads) would be returned to their previous conditions once construction is complete.
- Restoration of the laydown yards would involve pre-construction stripping and storing topsoil, including weed avoidance, as well as removing the gravel surface, regrading to pre-construction contours, restoring topsoil and decompaction of subsoils as needed, and reseeding with approved seed mixes.
- Following completion of construction, the temporary crane paths would be removed and the area restored, in accordance with the Project's Revegetation and Noxious Weed Management Plan (Appendix N of the ASC).
- The Applicant would provide a clean-looking facility free of debris and unused or broken-down equipment by storing equipment and supplies in designated areas within the O&M facilities and promptly removing damaged or unusable equipment from the site.
- The turbines and solar arrays would be uniform in design to present a trim, uncluttered, aesthetically attractive appearance.
- The Applicant would construct support facilities with non-reflective materials in muted tones and use white or light gray, non-reflective paint to eliminate the need for daytime aviation lighting and eliminate glare from the turbines.
- Sensors and switches would be used to keep security lighting turned off when not required, and all lights except aviation safety lighting would be hooded and directed downward to minimize light pollution.
- Any perimeter lighting at the O&M facilities and BESS would be activated only during maintenance or emergency activities at night.
- After construction is completed, vegetated areas that are temporarily disturbed or removed during construction of the Project would be restored to pre-disturbance conditions as reasonably possible in accordance with the Revegetation and Noxious Weed Management Plan (Appendix N of the ASC).
- The turbine layouts presented in the Final ASC include a reduction in the total number of turbines (reduced from the previous maximum of 244 turbines to the current maximum of 231 turbines for Option 1, and reduced from the previous 150 turbines to the current maximum of 147 turbines for Option 2). In addition, solar panel locations near I-82 have been eliminated, such that the nearest solar panels to I-82 would be approximately 1 mile away. These layout modifications result in a reduction of visual impact to certain viewers.

The Applicant has not proposed any commitments specific to light and glare. Agency-recommended mitigation measures are provided in Section 4.10 of this EIS.

2.1.3.10 Recreation

The Applicant has not proposed any commitments specific to recreation. Site-specific BMPs implemented during construction and operation to minimize potential impacts on noise, traffic, and visual surroundings (as described in the respective resource sections of the ASC) would minimize impacts on recreational users (Section 4.2.4 of the ASC). Agency-recommended mitigation measures are provided in Section 4.12 of this EIS.

2.1.3.11 Historic and Cultural Resources

The following are commitments proposed by the Applicant and described in detail in Section 4.2.5 of the ASC.

- Prior to construction of the Project, a qualified archaeologist would be retained and would provide a cultural resource briefing that includes:
  - All applicable laws and penalties pertaining to disturbing cultural resources
  - A brief discussion of the prehistoric and historic regional context and archaeological sensitivity of the area
  - Types of cultural resources found in the area
  - Instruction that Project workers would halt construction if a cultural resource is inadvertently discovered during construction
  - Procedures to follow in the event an inadvertent discovery (Inadvertent Discovery Plan discussed below) is encountered, including appropriate treatment and respectful behavior of a discovery (e.g., no posting to social media or photographs)

  If requested, a local tribal representative(s) would be invited to participate in the environmental training to discuss or provide text from a tribal cultural perspective regarding the cultural resources within the region.
- The Applicant would retain a qualified archaeologist to prepare and implement a Cultural Resource Pre-construction Survey and Avoidance Plan. The plan would provide protocols for pre-construction surveys of areas that have not been previously surveyed (e.g., during final design, construction needs, etc., extend beyond previously surveyed areas) and outline cultural resource avoidance measures. Tribal representatives would be invited to monitor the site during construction.
- Recorded cultural and historic resources would be avoided through modification of Project design and through buffers and protective signage or flagging, as well as monitoring, as appropriate. Notably, for precontact resources, the Project's proposed design has considered the resource's buffered boundary during the design process. If a resource cannot be avoided, a qualified archaeologist would develop additional archaeological investigation measures and additional mitigation in coordination with the Department of Archaeology and Historic Preservation (DAHP) and tribes, as appropriate.
- An Archaeological Excavation and Removal Permit would be pursued if any alteration of any precontact archaeological site were to occur, regardless of the level of disturbance. For historic-era archaeological sites, permits would be pursued for any removal or excavation of those that are unevaluated for, eligible for, or listed on the National Register of Historic Places (NRHP).
- The Applicant would retain a qualified archaeologist to prepare an Inadvertent Discovery Plan for the Project and avoidance procedures. During Project-level construction, should subsurface archaeological resources be discovered, all activity in the vicinity of the find would stop and a qualified archaeologist would be

contacted to evaluate the resource for listing in the Washington Heritage Register (WHR) and NRHP criteria (for historic-period resources or to conduct other appropriate investigations per Revised Code of Washington [RCW] 27.53 for precontact resources) conducted under the appropriate permits. The archaeologist would determine, in consultation with the implementing agencies and local Native American groups expressing interest, appropriate avoidance measures or other appropriate mitigation for any historic-period resources found to be NRHP/WHR-eligible and for all precontact resources. If a resource cannot be avoided, a qualified archaeologist would develop additional archaeological investigation measures, such as data recovery or other appropriate measures, in consultation with the implementing agency, DAHP, and appropriate Native American representatives.

- If evidence of human burials is encountered, all ground-disturbing activity in the vicinity would be halted immediately, and the DAHP, Benton County Planning and Community Development Department, Benton County Sheriff's Office, Applicant, and appropriate tribes would be notified immediately. No work would resume within a 100-foot radius (or appropriate distance) of the find until all appropriate approvals are received.

Agency-recommended mitigation measures are provided in Section 4.9 of this EIS.

2.1.3.12 Transportation

The following commitments are proposed by the Applicant and described in detail in Section 4.3 of the ASC.

- Any road improvements made during the Project's construction would be removed and the area restored to pre-construction conditions to the extent practical unless otherwise requested by the landowner.
- All road improvement and construction would be done in conjunction with Benton County Public Works requirements following Benton County standards. The Applicant would maintain new access roads to access the turbine structures during operations.
- Prior to commencement of construction, the Applicant would consult with the Washington State Department of Transportation (WSDOT) and Benton County to develop a Construction-Stage Traffic Management Plan.
- A detailed haul plan would be developed once turbines have been selected and a construction schedule developed. The haul plan would confirm source locations and routes to be used during Project construction, as well as anticipated loads and haul schedule.
- The Transportation Study (Appendix V of the ASC) would be verified and updated to include detailed condition assessments of roads to be used, structural assessments, and plans for improvement and maintenance.
- Ingress and egress points would be located and improved (if needed) to ensure adequate capacity for existing and projected traffic volumes and to provide efficient movement of traffic, including existing and anticipated agricultural traffic.
- The Applicant would obtain all necessary WSDOT permits to access, modify ingress and egress to, or transport regulated loads on state-managed roadways.
- The Applicant would obtain WSDOT trip permits for oversize and overweight loads.

- The Applicant would coordinate with EFSEC and Benton County to identify a qualified third-party engineer who would document road conditions prior to construction and again within 30 days after construction is complete or as weather permits.
- A service agreement between the Applicant and Benton County would ensure post-construction road restoration to conditions as good or better than pre-construction.
- The Applicant or its contractor and EFSEC staff would meet prior to final site plan approval to outline steps for minimizing construction traffic impacts, including conflicts if state-imposed roadway restrictions could affect transporter routes.
- The Applicant or its contractor would provide advance notification to adjacent landowners and farmers through mailing, informal meeting, open house, or other similar methods when construction takes place in the vicinity of their homes and farms to help minimize access disruptions.
- All construction vehicles would yield to school-related vehicles (e.g., school buses) and would lower their speed when approaching a school bus or bus stop along the transporter route.
- Advanced warning and proper roadway signage would be placed on major state and county roads to warn motorists of potential Project-related vehicles entering and exiting the roadway.
- When slow or oversized wide loads are being hauled, appropriate vehicle and roadside signing and warning devices would be deployed. Pilot cars would be used as WSDOT dictates, depending on load size and weight.
- Carpooling among the construction workers would be encouraged to reduce traffic volume to and from the Project site.
- Detour plans and warning signage would be provided in advance of any planned traffic disturbances.
- The Project would utilize appropriate signage where needed to direct the public not to enter restricted areas. During construction, temporary barriers and traffic control measures will be utilized where applicable.
- Flaggers would be employed as necessary to direct traffic when large equipment is exiting or entering public roads to minimize risk of accidents. Should the Applicant or its construction contractor receive notice during Project construction of transportation events (e.g., WSDOT or Benton County transportation projects, roadway incident, other traffic events) that give rise to a safety concern, the Project construction manager would review the Traffic Management Plan in coordination with the applicable agency and address additional safety measures, including flagging, as may be appropriate for the situation.
- If lane closure must occur, adequate signage for potential detours or possible delays would be posted.
- Advance notification would be provided to emergency providers and hospitals when public roads may be partially or completely closed.
- Emergency vehicles would be given the right-of-way per local, state, and federal requirements.
- Site access roads and an entrance driveway to the O&M facilities on site would be constructed to service truck movements of legal weight and provide adequate sight distance.

- Traffic control requests would be coordinated through the WSDOT traffic engineer and the Benton County public works department, abiding by seasonal county road restrictions.
- A haul and approach route would be developed in coordination with the appropriate jurisdictional authorities.
- Permanent private Project access roads would be maintained by the Applicant for the life of the Project.
- Tracked vehicles and heavy trucks would be restricted to approved transporter roads to prevent damage to surface and base of county roads.
- Turbines and permanent met towers would be lit according to regulations established by the FAA.
- The Applicant would obtain Determinations of No Hazard to Air Navigation from the FAA.
- Advance warning and proper roadway signage would be placed on highways and county roads to warn motorists of potential vehicles entering and exiting the roadway.
- After construction, all-weather access roads (including graveled roads), suitable to handle emergency equipment, would be provided within 150 feet of any built structure or surface activity area.
- If the final Project construction schedule coincides with the County's planned paving operation on County Well Road, the Applicant will coordinate construction and transportation activities with Benton County Public Works to avoid conflicts between the two actions.

Appendix X of the Final ASC presents a Traffic Impact Analysis that includes additional detail on traffic and transportation safety measures. Agency-recommended mitigation measures are provided in Section 4.14 of this EIS.

2.1.3.13 Public Services and Utilities

The Applicant has not proposed any commitments specific to public services and utilities. Agency-recommended mitigation measures are provided in Section 4.15 of this EIS.

2.1.3.14 Socioeconomic Environment

The following commitments are proposed by the Applicant and described in detail in Section 4.4 of the ASC.

- Active dust suppression would be implemented during construction.
- Engine idling time would be limited, and equipment would be shut down when not in use, to limit air emissions.
- Noise mitigation measures would include maintaining all tools and equipment in good operating order, using properly muffled construction equipment, and scheduling construction activity during normal working hours on weekdays to the extent possible.
- Prior to commencement of construction, the Applicant would consult with WSDOT and Benton County on the development of a Construction-Stage Traffic Management Plan that would be designed to reduce and manage construction-related transportation impacts.
- The Applicant would coordinate with the Benton County Fire Marshal and other appropriate agencies to finalize an Emergency Response Plan, as well as coordinate with local emergency services personnel and provide training where necessary.

Agency-recommended mitigation measures are provided in Section 4.16 of this EIS.

2.2 Post-Adjudication Applicant Commitments and Effectiveness

The Applicant provided changes in the Final ASC following comments and input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the BPA. Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023).

The following sections identify the modifications proposed in the Final ASC and whether individual modifications were analyzed as part of this EIS. If analyzed in the EIS, additional context has been provided as to whether a change in the impact ratings provided in the Draft EIS has occurred due to the new commitment or modification. For this EIS, an additional section has been added for each resource in Chapter 4 to address the modifications the Applicant provided to the Final ASC and whether the modifications warranted changes to impact ratings for each resource analyzed.

2.2.1 Reduce East Solar Array

In response to concerns expressed by stakeholders regarding impacts to wildlife connectivity, Priority Habitat, and visual resources in the area, the Applicant committed to reducing solar energy generation from 300 MWac to 100 MWac, as indicated in the Final ASC (Horse Heaven Wind Farm, LLC 2023). The extent of solar panels and associated infrastructure would be reduced and concentrated in areas with less sensitive habitat and would be located farther from I-82.

The reduction to the East Solar Array was analyzed as part of this EIS. Changes to resource impacts after the analysis of the post-adjudication Applicant commitments are described below.

The revised solar array fence alignment no longer overlaps areas rated as a moderate movement corridor by the Washington Wildlife Habitat Connectivity Working Group. Accordingly, the magnitude rating for impacts to general wildlife barriers to movement from solar arrays during Project Operation has been reduced from medium to low. Additional analysis of wildlife and habitat is provided in Chapter 4.6.

The high-magnitude impacts associated with views from I-82 (both key observation points [KOPs] 6 and 15) of the Bofer Canyon Solar Siting Area (East Solar Array) would be reduced to a medium level based on the reduction in the size of the proposed solar arrays, only occurring on the east side of I-82, which would result in the arrays being intermittently screened from view along the interstate, including from both KOP 6 and KOP 15. Further visual analysis is provided in Chapter 4.12.

2.2.2 Shift Turbine Infrastructure

To address WDFW comments, Turbine Option 1 infrastructure has been shifted away from Webber and Sheep Canyons as much as possible to reduce the potential for direct or indirect impacts on wildlife (Horse Heaven Wind Farm, LLC 2023). Turbines 8, 18, and 19 of Turbine Option 1 were shifted.

The shift of turbine infrastructure was analyzed as part of the EIS. The overall impact remains similar due to the turbines and other Project infrastructure that remains. The shift of turbine infrastructure for the turbines identified in the Final ASC does not change the impact ratings previously provided for resources in the Draft EIS.

2.2.3 Remove Specific Wind Turbines

To reduce visual impacts on resources of concern to local residents, Turbines 5, 6, 7, and 8 have been removed from Turbine Option 1 to reduce these visual impacts. Turbine 116 was removed from Turbine Option 1 since it was in the closest proximity to the most recently occupied ferruginous hawk nest. Turbines 119, 121, 122, 123, 124, 125, 162, and 243 were removed from Turbine Option 1, and Turbines 5, 6, and 7 were removed from Turbine Option 2 to reduce visual impacts on resources of concern to local residents and in proximity to ferruginous hawk core areas.

The removal of the above turbine infrastructure was analyzed as part of the EIS. The overall impact remains similar due to the turbines and other Project infrastructure that remains. The removal of turbine infrastructure for the turbines identified in the Final ASC does not change the impact ratings previously provided for resources in the Draft EIS.

To further reduce impacts to visual resources, the ferruginous hawk, and cultural resources, Turbines 9, 28, 29, 30, 59, 60, 260, 261, and 261 have been removed from Turbine Option 1. For the same reasons, Turbines 9, 28, 30, 59, 60, and A261 have been removed from Turbine Option 2 (Scout Clean Energy 2023). This further proposed reduction was proposed following the submittal of the Final ASC and, because of the late stage at which it was received, has been omitted from analysis within this EIS. The removal of this additional turbine infrastructure will be available to the EFSEC Council for its consideration during deliberations but has not been reflected in this EIS.

2.2.4 Remove/Add/Modify Transmission Lines and Substation Infrastructure

The BPA confirmed the location of the new Webber Canyon substation during the review of the Draft EIS. The substation was confirmed to be close to County Well Road. As a result, the Applicant finalized the locations of other related infrastructure and removed duplicate/alternate locations. In the Final ASC, the Applicant proposed to extend the County Well Road 500 kV transmission line route to the BPA's planned new Webber Canyon substation extending outside of the previously surveyed Project Lease Boundary.

New and unevaluated disturbance, including the undergrounding of additional transmission lines and infrastructure outside of the Project Lease Boundary, has been omitted from analysis within this EIS. For new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization. The removal of duplicate/alternate locations has been analyzed as part of the EIS. The overall impact remains similar due to remaining infrastructure. The removal of duplicate/alternate locations for the infrastructure identified in the Final ASC does not change the impact ratings previously provided for resources in the Draft EIS.

2.2.5 Add/Modify Construction Laydown Areas

The Applicant identified specific Phase 1 and Phase 2 laydown areas in the Final ASC. In addition, the Applicant has stated that General Electric has determined that all turbine components will need to be staged at a central location rather than delivered directly to turbine locations as needed during construction; this 20-acre central location has been identified in the Final ASC.

New and unevaluated disturbance, including the Phase 2 laydown yard sited outside of the Micrositing Corridor and the new central laydown yard outside the Project Lease Boundary, have been omitted from analysis within this EIS. For new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization.

The location of the eastern laydown yard has been analyzed as part of the EIS. The overall impact remains similar and does not change the impact ratings previously provided for resources in the Draft EIS.

2.2.6 Add Aircraft Detection Lighting System Infrastructure

The Applicant has proposed adding up to five FAA-compliant Aircraft Detection Lighting System (ADLS) radar sensor units, towers, and associated electrical infrastructure to meet Washington's new requirement under House Bill 1173 to include ADLS on wind energy facilities.

New and unevaluated disturbance, including the ADLS towers, has been omitted from analysis within this EIS. For new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization.

2.2.7 Update Fire Protection Systems Information

Due to fire protection systems BMPs evolving in recent years, including since the time the original ASC was developed in 2020–2021, the Applicant has updated the thermal runaway[11] design of the Project's BESS to align with the updated guidance.

The updated fire protection systems information has been analyzed as part of the EIS. The overall impact remains similar, and impact ratings previously provided for resources in the Draft EIS remain the same.

2.2.8 Modification of Battery Energy Storage System(s)

New information received from potential offtakers has caused the Applicant to adjust the optimal sizing of the battery storage for the Project. The two BESS would be capable of storing and later deploying up to 300 MW of energy generated by the Project using lithium-ion batteries. The following changes have been identified affecting both potential BESS facilities:

- The East BESS would be reduced to 100 MWac (on 6 acres).
- The West BESS would be increased to 200 MWac (on 10 acres).
- Modifications in net BESS capacity would occur on agricultural lands and have no effect on Priority Habitats.
- This would result in the combined BESS capacity being maintained at the original 300 MWac sizing across the Project.

The updated BESS sizing has been analyzed as part of the EIS. The overall impact remains similar, and impact ratings previously provided for resources in the Draft EIS remain the same.

2.2.9 Potential Use of Washington State Department of Natural Resources Gould Well

The Applicant continues to explore various options for water supply to the Project during construction and operations to minimize the transportation and environmental impact. The Applicant is currently working with the DNR to assess the potential for a lease agreement that would allow for use of a portion of the DNR's existing

[11] The battery cells' safety and stability depend on maintaining internal temperatures within specific limits. If the temperature exceeds the critical level on either end, thermal runaway can occur, destroying the battery or, even worse, starting a fire.

water right associated with the Gould Well to be used during construction and operation of the Project. The Gould Well is located approximately 2 miles west of the Project Lease Boundary.

New and unevaluated disturbance and water use, including the use of a nearby water well, have been omitted from analysis within this EIS. For new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization.

2.2.10 Unevaluated Project Components

The Applicant's Final ASC included new elements that were not initially part of the project design, and therefore not evaluated as part of the Draft EIS. The new elements presented in the Final ASC have not been evaluated as part of this final version of the EIS. The elements include:

- Additional micrositing corridors or other disturbance outside the Lease Boundary.
- The addition of a laydown area located outside of the Lease Boundary for the purpose of providing an interim storage location for turbines. The need for the additional laydown area would be determined by the Applicant and its vendors as the Project's procurement progresses.
- The new location of the western laydown area outside of previously analyzed micrositing corridors.
- If authorized, the associated disturbance and unsurveyed micrositing corridors inside and outside of the Lease Boundary needed to accommodate ADLS, as required by State of Washington House Bill 1173, passed in 2023. Authorization of the ADLS would be at the discretion of the FAA.
- Potential use of the DNR Gould Well, outside of the Project Lease Boundary, for Water Supply
- Use of haul routes not evaluated in the Traffic Impact Analysis.
- While the construction of transmission lines within micrositing corridors is evaluated in this EIS, undergrounding of the line was not included as part of this analysis.

For any of these new and unevaluated components to be included as part of the Project, supplemental analysis would be required prior to EFSEC authorization.

2.3 Alternatives to the Proposed Action

2.3.1 Alternatives Considered

The following alternatives were considered for analysis:

- **Solar Only:** Under this alternative, only the solar facilities and supporting infrastructure would be constructed within the 10,755 acres of Solar Siting Areas, resulting in a permanent disturbance footprint of approximately 5,447[12] acres. The Applicant would consider all solar technology available at that time to design the most efficient and effective solar array layouts.

[12] As proposed in the Final ASC. Reflects the reduction in acreage associated with solar arrays from 6,570 acres of permanent disturbance to 5,447 acres of permanent disturbance (Horse Heaven Wind Farm, LLC 2023).

- **Wind Only:** Under this alternative, only the wind turbines and supporting infrastructure would be constructed within the 11,850 acres of Wind Energy Micrositing Corridor, resulting in approximately 476.6 [13] acres of permanent disturbance.
- **No Action:** Under the No Action Alternative, the Project would not be constructed or operated, power would not be supplied from the Project, and the potential environmental impacts associated with the Project would not occur. Existing agricultural use in the Lease Boundary would continue without interruption.

2.3.2 Alternative Carried Forward for Detailed Analysis

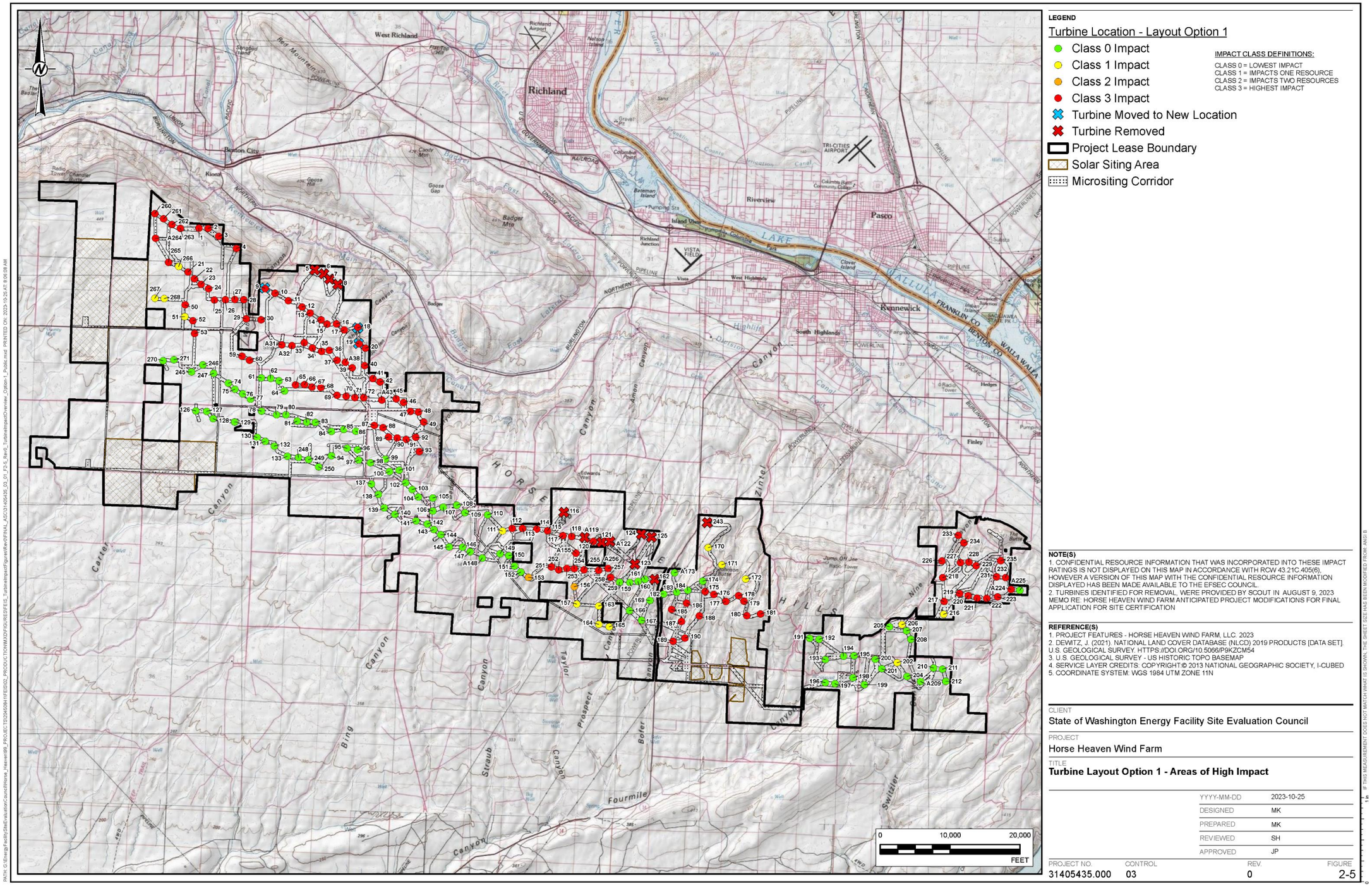
The Solar Only and Wind Only alternatives were eliminated from detailed analysis because they would not generate the designed nameplate generating capacity proposed by the Applicant. As the Proposed Action involves “a private project on a specific site,” the agency, per WAC 197-11-440(5)(d), is only required to consider a no-action alternative and reasonable on-site alternatives that achieve the proposed objective. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows EFSEC to identify components that have a higher impact than others.

EFSEC has the authority to recommend approval or denial of components of the Project to serve the purposes of RCW 80.50. Using this methodology, this Final EIS is inclusive of multiple design and construction alternatives to the Applicant’s Proposed Action.

Figure 2-5 and **Figure 2-6** show Turbine Option 1 and Turbine Option 2, respectively, with the proposed solar siting fields. High impact areas on the figures are identified and are associated with areas with more than one high-magnitude impact, as identified in Chapter 4 of each resource. The figures are intended to provide EFSEC and its Council members with information that could be used in the identification of specific turbines that have multiple impacts and could require additional mitigation including the removal or relocation within the Micrositing Corridor. These figures lack identifying details for the public because impacts may be related to protected or confidential resources. EFSEC was provided with detailed versions of these figures to assist in the decision-making process for this Project.

The No Action Alternative was carried forward for analysis in the EIS.

[13] Updated spatial layers for updated crane paths, collector lines, and roads were not provided for the Final ASC, therefore, the acreage remains the same as previously provided by the Applicant in their 2021 spatial layers (Horse Heaven Wind Farm, LLC 2021).



LEGEND

Turbine Location - Layout Option 1

- Class 0 Impact
- Class 1 Impact
- Class 2 Impact
- Class 3 Impact
- Turbine Moved to New Location
- Turbine Removed
- Project Lease Boundary
- Solar Siting Area
- Micrositing Corridor

IMPACT CLASS DEFINITIONS:

CLASS 0 = LOWEST IMPACT
CLASS 1 = IMPACTS ONE RESOURCE
CLASS 2 = IMPACTS TWO RESOURCES
CLASS 3 = HIGHEST IMPACT

NOTE(S)

1. CONFIDENTIAL RESOURCE INFORMATION THAT WAS INCORPORATED INTO THESE IMPACT RATINGS IS NOT DISPLAYED ON THIS MAP IN ACCORDANCE WITH RCW 43.21C.405(6). HOWEVER A VERSION OF THIS MAP WITH THE CONFIDENTIAL RESOURCE INFORMATION DISPLAYED HAS BEEN MADE AVAILABLE TO THE EFSEC COUNCIL.
2. TURBINES IDENTIFIED FOR REMOVAL, WERE PROVIDED BY SCOUT IN AUGUST 9, 2023 MEMO RE: HORSE HEAVEN WIND FARM ANTICIPATED PROJECT MODIFICATIONS FOR FINAL APPLICATION FOR SITE CERTIFICATION

REFERENCE(S)

1. PROJECT FEATURES - HORSE HEAVEN WIND FARM, LLC. 2023
2. DEWITZ, J. (2021). NATIONAL LAND COVER DATABASE (NLCD) 2019 PRODUCTS [DATA SET]. U.S. GEOLOGICAL SURVEY. HTTPS://DOI.ORG/10.5066/P9KZCM54
3. U.S. GEOLOGICAL SURVEY - US HISTORIC TOPO BASEMAP
4. SERVICE LAYER CREDITS: COPYRIGHT© 2013 NATIONAL GEOGRAPHIC SOCIETY, I-CUBED
5. COORDINATE SYSTEM: WGS 1984 UTM ZONE 11N

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Turbine Layout Option 1 - Areas of High Impact

YYYY-MM-DD	2023-10-25
DESIGNED	MK
PREPARED	MK
REVIEWED	SH
APPROVED	JP

PROJECT NO.	CONTROL	REV.	FIGURE
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Figure 2-5: Turbine Layout Option 1 - Areas of High Impact

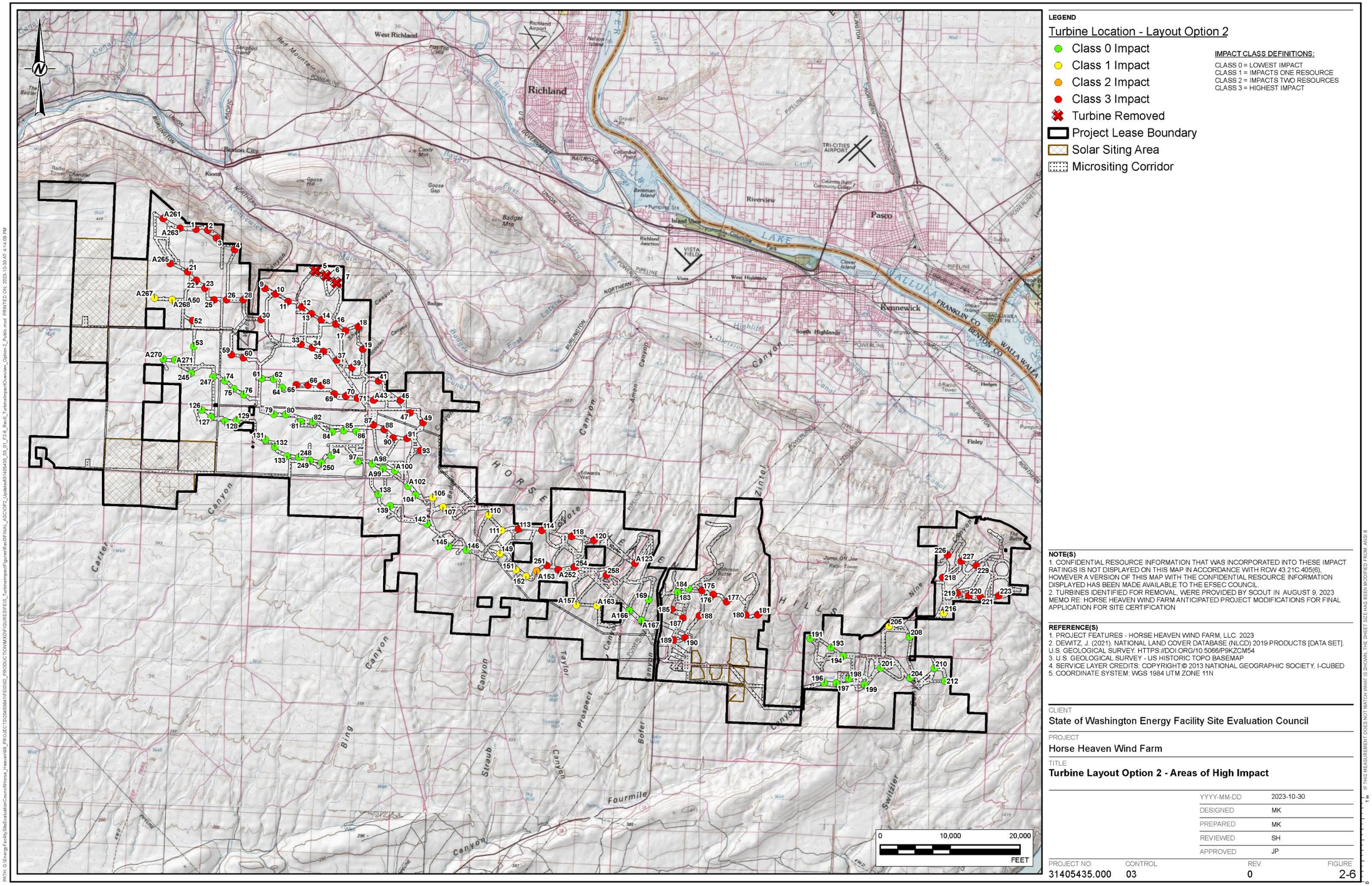

Figure 2-6: Turbine Layout Option 2 - Areas of High Impact

3.0 CHAPTER 3 – AFFECTED ENVIRONMENT

3.1 Introduction

This chapter describes the existing environment without the construction and operation of the proposed Horse Heaven Wind Farm (Project, or Proposed Action), which represents the existing conditions under the No Action alternative.

Chapter 3 has been subdivided into separate sections, one for each element of the environment listed in Washington Administrative Code (WAC) 197-11-444[1] and an additional section describing existing conditions related to the socioeconomic environment:

- Earth Resources (including seismic hazards)
- Air Quality
- Water Resources
- Vegetation
- Wildlife and Habitat
- Energy and Natural Resources
- Land and Shoreline Use
- Historic and Cultural Resources
- Visual Aspects, Light and Glare
- Noise and Vibration
- Recreation
- Public Health and Safety
- Transportation
- Public Services and Utilities
- Socioeconomics

Chapter 4, Analysis of Potential Impacts and Mitigation presents an evaluation of potential impacts to the affected environment.

3.1.1 Use of Applicant-Prepared/Provided Information

This analysis of affected environment is based primarily on information provided by Horse Heaven Wind Farm, LLC (Applicant) in the Application for Site Certification (ASC) for the Project. A variety of documents and information sources provided by the Applicant were used during the preparation of this Environmental Impact Statement (EIS). These Applicant-provided documents include Applicant responses to formal Washington Energy Facility Site Evaluation Council data requests, preliminary engineering plans, and a variety of reports and technical documents prepared by the Applicant's consultants.

However, to support the decision-making process, a Washington State Environmental Policy Act review must be objective. To confirm what the Applicant has presented in their ASC, this EIS used information sourced from independent institutions and government agencies. Additionally, the EIS incorporates the professional judgment of specialists. Their insights and recommendations are supported by data, education, or experience and are substantiated with literature.

Pertinent sources used in addition to the ASC are listed in Chapter 6, References.

[1] Washington Administrative Code (WAC) 197-11-444 includes a list of "elements of the environment" that are typically considered for inclusion during preparation of an Environmental Impact Statement. The SEPA lead agency (i.e., EFSEC) has flexibility to narrow the topics addressed in the EIS within these topic areas.

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3.2 Earth Resources

This section describes existing earth resources and geologic hazards in the State of Washington and within the Lease Boundary for the proposed Horse Heaven Wind Farm (Project, or Proposed Action). The Project vicinity includes the areas 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. Section 4.2 presents an evaluation of the Project's consistency with relevant earth resource documents and ordinances and adopted state, county, and local plans, goals, and policies, including the potential impact the Project would have on earth resources.

Regulatory Setting

The State of Washington has adopted the 2018 International Building Code (IBC) standards with statewide amendments, effective February 1, 2021. The 2018 IBC provides design-level seismic parameters consistent with the requirements of the American Society of Civil Engineers Standard 7-16 for Minimum Design Loads and Associated Criteria for Buildings and Other Structures. The seismic design parameters are dependent on the structural requirements based on occupancy.

The State of Washington Water Pollution Control Act requires compliance with the National Pollutant Discharge Elimination System (NPDES) through a Construction Stormwater General Permit. The NPDES Construction Stormwater General Permit would require the steps contractors must take to prevent erosion or the discharge of any unpermitted pollution.

The State of Washington's Growth Management Act (GMA), Revised Code of Washington 36.70A, requires all cities, towns, and counties in the state to identify critical areas and establish regulations to protect and limit development in those areas. Among the critical areas defined by the GMA are frequently flooded areas and geologically hazardous areas. As defined by Washington Administrative Code (WAC) 365-190-120, geologically hazardous areas are areas that are susceptible to erosion, landslide, seismic activity, or other geological events such as coal mine hazards, volcanic hazards, mass wasting, debris flows, rock falls, and differential settlement. The GMA requires that local governments establish critical area protection programs that address the following:

- Protecting members of the public, public resources, and facilities from injury, loss of life, or property damage due to landslides and slope failures, erosion, seismic events, volcanic eruptions, or flooding
- Maintaining healthy, functioning ecosystems through the protection of unique, fragile, and valuable elements of the environment
- Directing activities not dependent on critical area resources to less ecologically sensitive sites, and mitigating unavoidable impacts on critical areas by regulating alterations in and adjacent to those areas
- Preventing cumulative adverse environmental impacts on frequently flooded areas

As defined by WAC 463-62-020, the seismicity standard for construction of energy facilities shall be the standards contained in the state building code.

Benton County Code 15.02 designates and classifies ecologically sensitive and hazardous areas, protecting those areas and their function and values while also allowing for reasonable use of private property. Geologically hazardous areas are considered one of the five types of critical areas requiring protection by the GMA. The Benton County Hazard Mitigation Plan (Hazard Mitigation Plan) was originally approved by the Washington Military Department, Emergency Management Division, and the Federal Emergency Management Agency in 2004. The 2019 revision of the Hazard Mitigation Plan is in effect until 2024. The document assists with the

identification and assessment of various potential hazards and helps maintain Benton County's eligibility for grants and other funding. Relevant goals of the Hazard Mitigation Plan include:

- Goal 6: Local governments support hazard mitigation planning and support the implementation of the mitigation action items for their jurisdiction.
- Goal 6 Objective E: Support the location of new facilities outside of areas vulnerable to the impacts of natural hazards.
- Goal 6 Objective F: Design facilities to withstand the impacts of a disaster when it is not feasible to relocate them.

3.2.1 Affected Environment

The Lease Boundary is located in the Horse Heaven Hills area of Benton County, Washington, within the larger Columbia Basin Physiographic Province of Washington and the wider Pacific Northwest region of the United States and British Columbia, Canada (Clarke and Bryce 1997).

3.2.1.1 Regional Geology

The geology and earth resources within the Lease Boundary are part of, and subject to, geological forces and processes affecting the wider Pacific Northwest region, which includes Oregon, Washington, Idaho, and British Columbia. This section provides a brief description of the major regional geological processes that have produced the earth resources within the Lease Boundary and Project vicinity.

Geological Processes – Plate Tectonics

The geological history of the Pacific Northwest reflects the evolution of plate tectonic forces. In the region of the proposed Project, between about 17 and 6 million years ago, large volumes of lava erupted from deep crustal fissures above a "mantle hotspot." These basalt flows make up the Columbia River Basalt Group, which is the most common type of exposed rock in the region. The recent geology of the Pacific Northwest region has been strongly influenced by geological processes associated with the convergence of three major tectonic plates:

- North American
- Juan de Fuca
- Pacific

The region where the Juan de Fuca and North American tectonic plates interact is known as the Cascadia Subduction Zone (CSZ). The Juan de Fuca plate is entirely oceanic (below sea level) and is slowly sinking and moving eastward beneath the western edge of the North American plate (Yeats 2004). This type of movement is known as subduction. The Pacific plate is also an oceanic tectonic plate that lies beneath the Pacific Ocean and adjoins the Juan de Fuca plate. The separation of the Pacific and Juan de Fuca plates causes the Juan de Fuca plate to move eastward, beneath the western edge of the North American plate. As the Juan de Fuca plate moves away from the Pacific plate, the gap between the plates is filled with molten rock to form regions known as "spreading centers" that have many hot springs and undersea eruptions. The rate of the Juan de Fuca plate's eastward movement is about 2 inches per year (Swanson et al. 1989). This slow movement drives most of the active geological processes observed in the Pacific Northwest. These processes include the generation of large and small earthquakes, formation and eruption of volcanoes, and uplift and folding of the earth's surface.

The relative motions of the tectonic plates cause changes in the structure of the rocks in the overlying North American plate. Ongoing plate movements along the western edge of the North American plate have broken it into smaller pieces or crustal blocks. As shown in **Figure 3.2-1**, these blocks include the Oregon Coastal Range, Canadian Coastal Mountains, and Sierra Nevada blocks. The northward motion of the Oregon Coastal Range block has pushed western Washington against the Canadian Coast Mountains, which have not moved relative to the rigid North American plate. This process has caused most of Oregon and southwest Washington to rotate clockwise relative to North America at a rate of 0.4 to 1.0 degrees per million years (Wells and Heller 1988; Wells and Simpson 2001; Brocher et al. 2017). These rotations and block movements result in north-south-directed compression and the folding of the earth's crust in Washington.

The north-south-directed compression and folding in the shallow crust of eastern Washington has formed the Yakima Fold and Thrust Belt (YFTB). The YFTB is expressed as a series of alternating ridges and valleys known as anticlines (ridges) and synclines (valleys). An "anticline" is the geologically high part of one or more geological units that have been folded by geological forces. A "syncline" is a geological trough and, therefore, the lower part of one or more geological units. As shown in the inset in **Figure 3.2-1**, the geologically young ridge-and-valley topography of the YFTB consists of narrow anticlinal ridges up to 2,000 feet high, separated by broad synclinal valleys 1 to 10 miles wide over an area of about 5,500 square miles in eastern Washington (Reidel et al. 2003).

Geological Processes – "Ice Ages"

Another major impact on the geology of the region was the advance and retreat of the major continent-wide glaciers of many "ice ages" over at least the last million years. During the most recent period of major glaciation from about 15,000 to 10,000 years ago, glaciers created an ice dam on the Clark Fork River in northern Idaho. This caused the river to back up and form a lake, known as Lake Missoula. At the end of the ice age, ice began to melt, causing water to flow into the lake and further increase its size.

As the ice melted, glacial Lake Missoula overwhelmed the ice dam, causing it to suddenly collapse and release large-scale flooding across eastern Washington and around the Columbia River. This event caused huge volumes of lake water to flow rapidly west to the Pacific Ocean. Over a period of about 2,000 years, the ice dam of glacial Lake Missoula failed repeatedly, draining the lake and causing great floods down the Columbia River. These sudden releases of water carved wide and deep channels into the underlying basalt bedrock, forming a stripped and eroded "channeled scabland" landscape.

Evidence of the repeated flooding events caused by Lake Missoula can be seen today at the Wallula Gap and Grand Coulee. The Wallula Gap and Grand Coulee form a two-stage canyon 50 miles long and up to 900 feet deep. The giant floods through the Wallula Gap and Grand Coulee discharged an estimated 350,000,000 cubic feet per second each time the lake flooded. The extensive flooding from the repeated collapses of the Lake Missoula ice dams stripped most of the near-surface layers of topsoil and glacial deposits in eastern Washington and northern Oregon. Flood events before the last ice age deposited the older glacial and glacial lake sediments in western Washington and the Pacific Ocean. These sediments were subsequently blown back into the Columbia Basin by the dominant southwesterly winds (Sweeny et al. 2017). Geologists refer to these wind-blown silt and fine sand deposits as eolian loess.

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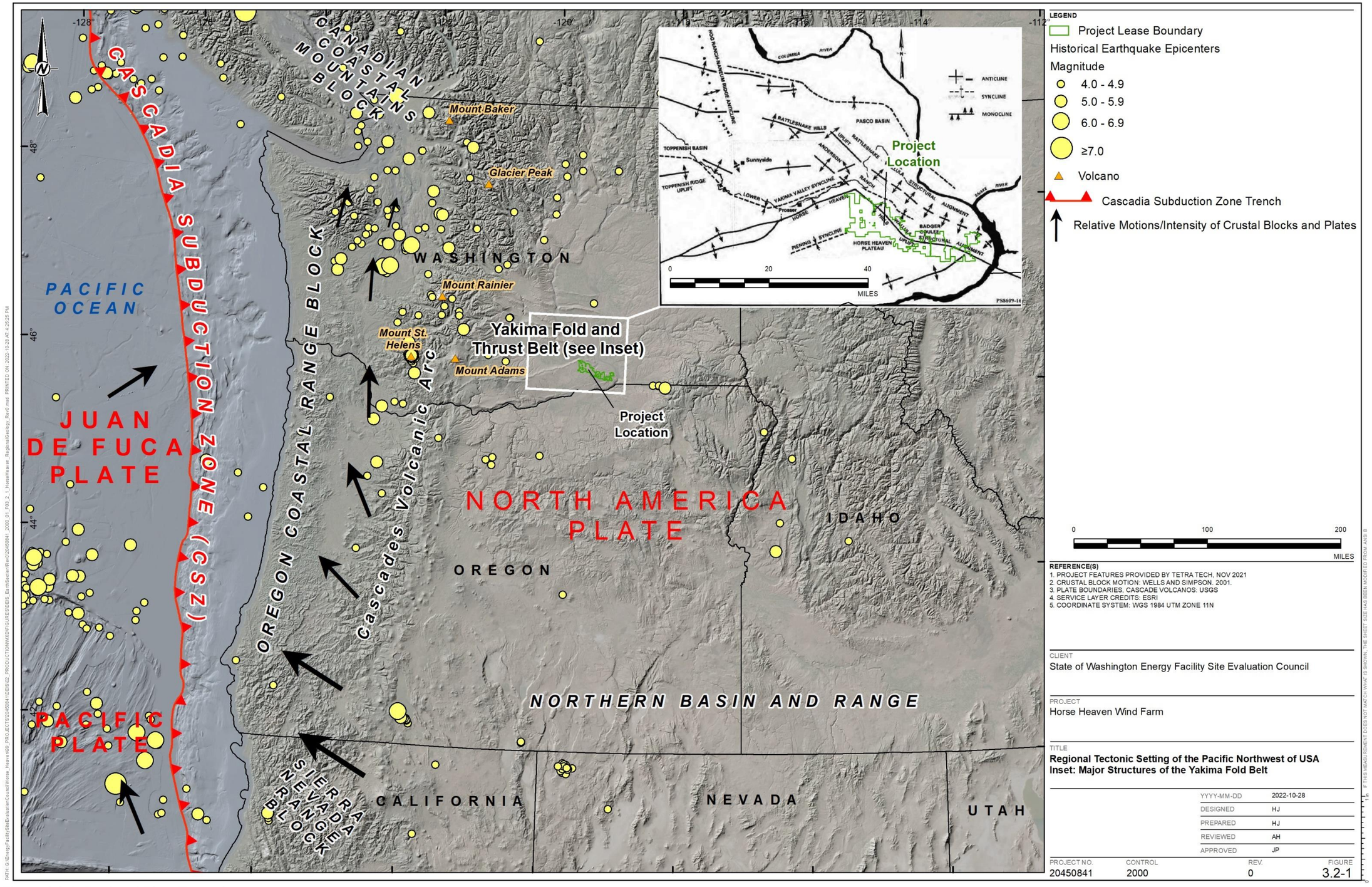

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1. PROJECT FEATURES PROVIDED BY TETRA TECH, NOV 2021
2. CRUSTAL BLOCK MOTION: WELLS AND SIMPSON, 2001.
3. PLATE BOUNDARIES, CASCADE VOLCANOS: USGS
4. SERVICE LAYER CREDITS: ESRI
5. COORDINATE SYSTEM: WGS 1984 UTM ZONE 11N

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Regional Tectonic Setting of the Pacific Northwest of USA
Inset: Major Structures of the Yakima Fold Belt

YYYY-MM-DD	2022-10-28
DESIGNED	HJ
PREPARED	HJ
REVIEWED	AH
APPROVED	JP

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Figure 3.2-1: Regional Plate Tectonics

3.2.1.2 Site Conditions

Geology

As shown in **Figure 3.2-2**, the surficial geology of the Lease Boundary consists of Columbia River Basalt Group lava flows that are overlain by wind-blown loess and some glaciolacustrine deposits. The Geologic Map of Washington describes the Lease Boundary geology as Quaternary-age (last 2.6 million years) non-marine loess and glaciolacustrine deposits consisting of the following:

- Homogeneous and unconsolidated fine-grained sand and silt with some gravel, clay, and diatomaceous earth
- Miocene-Pliocene dark gray, fine-grained basalt commonly interbedded with conglomerate, sandstone, and siltstone (Huntting et al. 1961).

As illustrated in **Figure 3.2-2**, the local bedrock is consistent with the Columbia River Basalt Group, with many lava flows interbedded with sedimentary layers formed by the erosion and deposition of the volcanic rocks. These basalt rocks and lava flows underlie the wind-blown loess and silt and form the bedrock within the Lease Boundary.

On-site Geotechnical Investigation

Horse Heaven Wind Farm, LLC (Applicant) conducted a preliminary geotechnical investigation of the Lease Boundary. The investigation found that:

- Basalt was encountered at various stages of weathering at depths of 5 to 45 feet below ground surface (bgs).
- Two basalt core samples from the geotechnical drilling were laboratory tested to evaluate the strength of the basalt for proposed facility foundations. The in-situ moist unit weight of basalt on site is estimated at 170 pounds per cubic foot, and the compressive rock strength of the basalt ranges from 470 to 2,415 tons per square foot.

The Applicant's preliminary geotechnical evaluation concluded that variability in compressive strength reflects the variability in the degree of weathering and fracturing of the basalt on site (Horse Heaven Wind Farm, LLC 2022).

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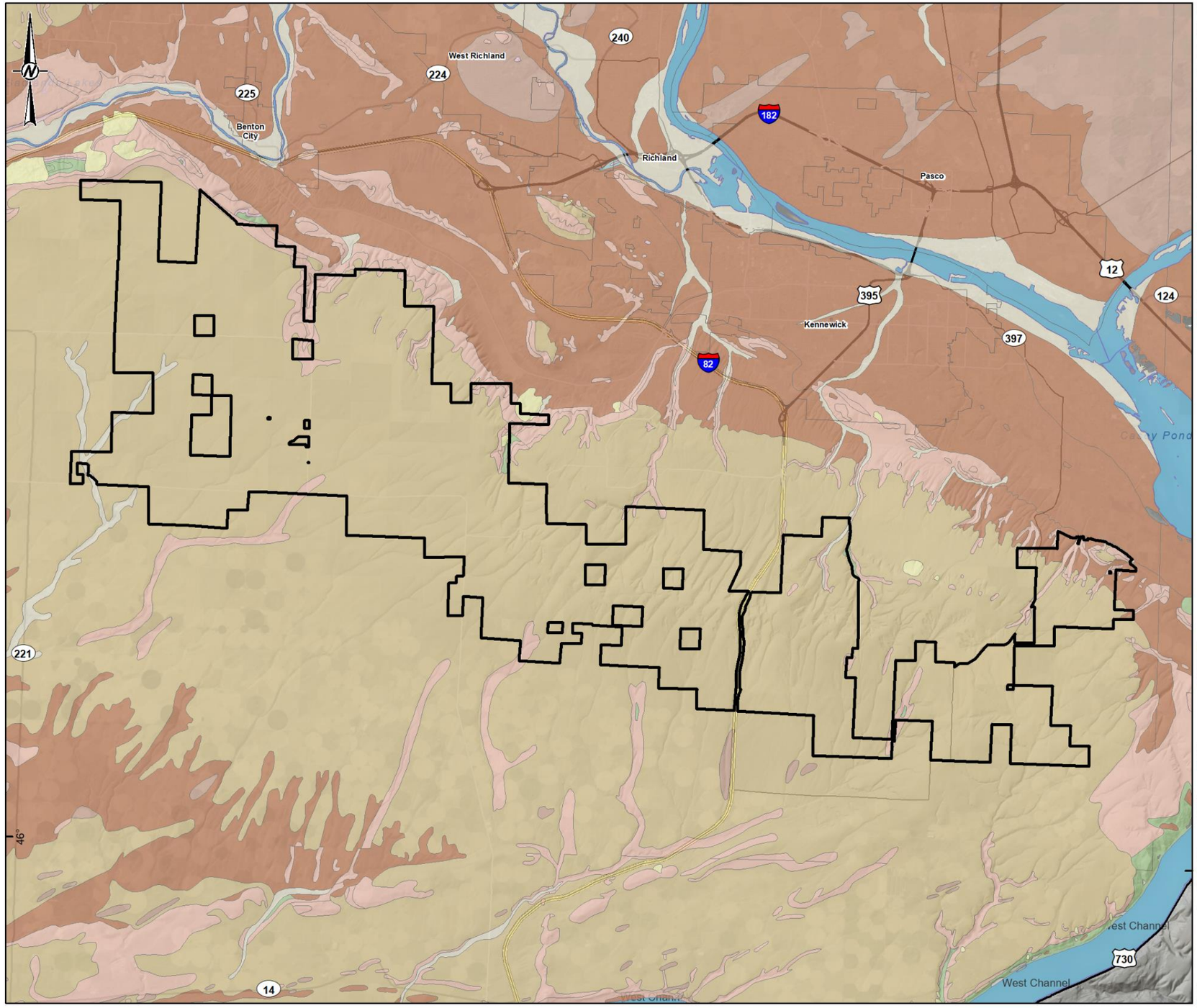

LEGEND

- Project Lease Boundary
- Municipal Boundary

Surficial Geology

- Quaternary alluvium
- Quaternary dune sand
- Quaternary eolian deposits, loess
- Quaternary mass-wasting deposits
- Quaternary-Tertiary sedimentary rocks and deposits
- Miocene Columbia River Basalt Group, Saddle Mountains Basalt
- Miocene Columbia River Basalt Group, Wanapum Basalt
- Tertiary sedimentary rocks and deposits
- Pleistocene Missoula flood deposits

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MILES

REFERENCE(S)
1. PROJECT FEATURES PROVIDED BY TETRA TECH, NOV 2021
2. SURFICIAL GEOLOGY: WADNR
3. SERVICE LAYER CREDITS: ESRI
4. COORDINATE SYSTEM: WGS 1984 UTM ZONE 11N

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Surficial Geology of Project Lease Boundary and the Surrounding Area

YYYY-MM-DD	2021-12-10
DESIGNED	HJ
PREPARED	HJ
REVIEWED	AH
APPROVED	JP

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Figure 3.2-2: Project Vicinity and Lease Boundary Geology

Soils

To evaluate potential surface impacts from the Project, it is important to assess the types of soils at the site. The Applicant's preliminary geotechnical investigation report indicates that loess covers most of the Lease Boundary. Based on the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) Web Soil Survey data, and as shown in **Figure 3.2-3**, the most prominent and widely distributed soil unit mapped within the Project area is Ritzville Silt Loam (USDA n.d.).

The NRCS maps Ritzville Silt Loam within the Lease Boundary as a silt loess (ML). This mapping unit is characteristic of the loessial and glaciolacustrine deposits from the post-glacial Lake Missoula flood events. Less extensive soil units intermixed across the Lease Boundary include silt loams, fine sandy loams, very fine sandy loams, stony fine sandy loams, and very stony silt loams.

The most prevalent natural soil cover across the Lease Boundary is very loose to medium dense silt, with varying amounts of sand (loess). In some places, the soil has been modified by natural and agricultural activities. The Applicant's preliminary geotechnical study presented in the 2022 Application for Site Certification (ASC) describes the soil stratigraphy for the Lease Boundary as follows:

- **Topsoil.** Generally light brown and silty, with low to moderate organic content and active roots. Thicknesses range from non-existent to approximately 4 inches bgs. Topsoil layers are assumed to be thicker in topographic low areas and pastureland.
- **Silt, Silt with Sand, Sandy Silt.** Underlying the topsoil across the Lease Boundary is a wind-blown silt, or loess, with varying amounts of sand. The silty material within the Lease Boundary is light brown to brown, dry to damp, very loose to medium dense, and occasionally lightly cemented. Loess is encountered directly beneath the topsoil and occasionally extends to the underlying basalt, with thicknesses ranging from 5 to greater than 60 feet bgs.
- **Silty Sand.** Silty sand, with varying amounts of gravel, underlies the loess in some places. This soil unit is typically light brown to brown, dry to damp, and medium dense to very dense (Horse Heaven Wind Farm, LLC 2022).

Expansive soils can occur in areas where repeated changes in moisture content such as rainfall, irrigation, perched groundwater, or drought result in the formation of expansive clays. Shrinking and swelling of expansive clay soils can cause changes in foundation conditions that require special engineering. However, the Web Soil Survey data classify the soils within the Lease Boundary as generally having a low potential for soil expansion (USDA n.d.).

On-site Soils Investigation

The Applicant performed laboratory tests on representative soil samples collected from the Lease Boundary to aid in the classification and evaluation of physical properties and engineering characteristics of site materials. The Applicant's preliminary geotechnical investigation for the Lease Boundary describes the geotechnical characteristics of the Lease Boundary's soils as follows:

- The in-situ gravimetric moisture contents of the soils range from approximately 2 to 5 percent, averaging 8 percent. These levels indicate relatively low levels of soil moisture. The in-situ moist unit weight of soil on site is estimated at 80 to 110 pounds per cubic foot for all soil types.

- The friction angle for the silty loess encountered on site is estimated to range from 28 to greater than 40 degrees, indicative of very loose to very dense soil (Horse Heaven Wind Farm, LLC 2022).

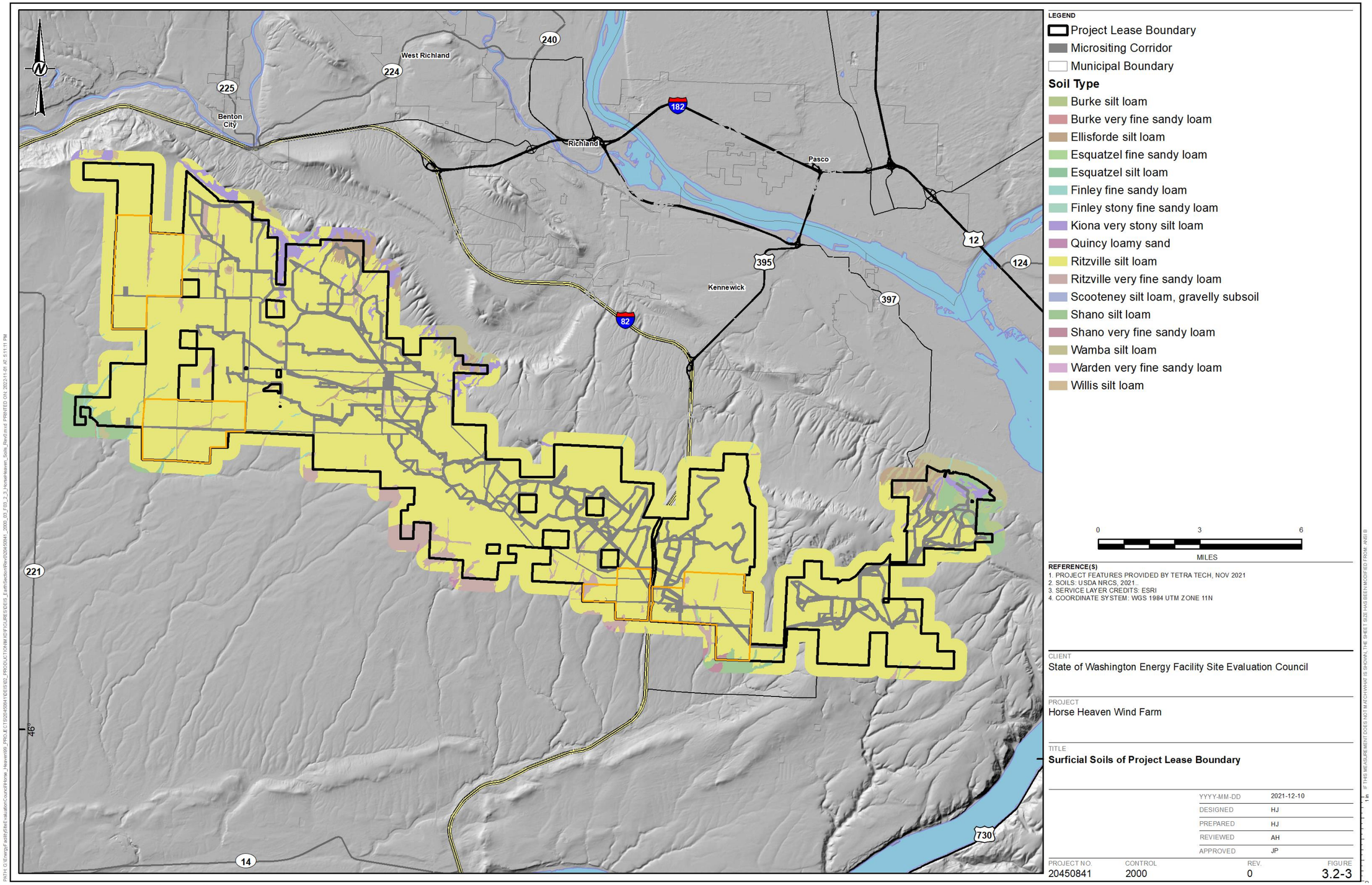

Figure 3.2-3: Lease Boundary Soils Data

The soil borings, descriptions, and laboratory tests indicate that the Lease Boundary is primarily underlain by very loose to medium dense silt. The loose silt layers are considered compressible and could be susceptible to static settlement upon loading. The shallow soil within the Lease Boundary is susceptible to collapse upon wetting. Soil collapse occurs when a relatively loose, dry, low-density material is inundated with water and subjected to a load. The Applicant's preliminary geotechnical investigation report concluded that the collapse potential of soils within the Lease Boundary is moderate to high. Loess silt is particularly prone to collapse because of its depositional mode (i.e., wind) and can result in development of a loose, low-density soil profile.

If fine- to medium-grained granular soils (silt and fine sand) are saturated during earthquake-induced strong ground shaking, they can lose strength through liquefaction. Under high levels of ground shaking, saturated loess silt deposits could become susceptible to soil liquefaction. The dense, coarse-grained sand and gravel layers within the Lease Boundary are, comparatively, much less susceptible to liquefaction (Horse Heaven Wind Farm, LLC 2022). Soil liquefaction processes are described further under General Earthquake Hazards, below.

Topography

The topography of the Columbia Basin Province is characterized by steep river canyons, sharp ridge lines, and broad plateaus. The Horse Heaven Hills ridgeline lies along the northern border of the Lease Boundary. To the south of the ridgeline, the topography is dominated by rolling hills and undulating plains, crossed by meandering canyons, with some ephemeral or intermittent drainage channels. As illustrated in **Figure 3.2-4**, the Lease Boundary is located on the Horse Heaven Hills ridgeline anticline at the eastern edge of the YFTB.

There are no major rivers or other perennial streams within the Lease Boundary. The elevation of the Lease Boundary ranges from 604 to 2,051 feet above mean sea level. The nearest major water bodies are the Columbia and Yakima Rivers. Both rivers are topographically lower than the Lease Boundary. At its nearest location, the Yakima River passes 1.5 miles north of the western part of the Lease Boundary. The Columbia River is located north, east, and south of the Lease Boundary. At its nearest location, the Columbia River is 1.3 miles away from the Lease Boundary's eastern border (Horse Heaven Wind Farm, LLC 2022).

Groundwater

Local water well depths within the Lease Boundary reportedly range between 55 and 1,506 feet bgs (Ecology n.d.). During the Applicant's geotechnical investigation, boreholes were evaluated for the presence and level of any groundwater during and shortly after drilling operations. The boreholes did not display a static groundwater level (Horse Heave Wind Farm, LLC 2022). Section 4.4 evaluates the Project's anticipated impacts on groundwater resources.

3.2.1.3 Geological Hazards

Geologic hazards include earthquakes, landslides, debris flow flooding, problem soils, and rock and volcanic hazards. This section discusses geological hazards that could impact the Project and Lease Boundary.

General Earthquake Hazards

The magnitude of an earthquake is measured by analyzing records from an array of regionally deployed seismometers. The most common magnitude scale now used by seismologists is the moment magnitude, expressed as M_W or M. This scale measures the energy released at the earthquake source. The M_W and most other earthquake magnitude scales are logarithmic, meaning that an earthquake of M_W 6 releases about 30 times more energy at the source than an M_W 5 earthquake. Most people do not feel earthquakes smaller than M_W 3

unless they are within approximately 5 miles of the epicenter and the earthquake is less than about 10 miles deep. The main hazards associated with earthquakes within the Pacific Northwest are:

- Surface fault rupture
- Strong ground shaking
- Soil liquefaction
- Surface fault rupture
- Tsunami and seiche

Earthquake hazards in the Pacific Northwest are primarily related to ongoing activity in the CSZ, with the convergence of the North American and Juan de Fuca tectonic plates. **Figure 3.2-4** presents the tectonic setting of the Pacific-Juan de Fuca-North American plate boundary region in the Pacific Northwest. The major types of earthquakes that occur in the Pacific Northwest region are:

- **Megathrust CSZ Earthquakes:** Also referred to as a subduction interface earthquake, this type results from shallow rupture at the interface or boundary between the Juan de Fuca and the overriding North America plate tectonic plates less than 30 miles from the surface.
- **Deep CSZ Earthquakes:** Also referred to as a subduction in-slab earthquake, this type results from stresses within the subducting Juan de Fuca plate beneath the plate interface during its slow descent beneath the Pacific Northwest.
- **Shallow Crustal Earthquakes:** Also referred to as a background earthquake, this type originates along known and mapped crustal fault zones. These earthquakes are known as crustal fault earthquakes. There are also shallow crustal earthquakes that are not associated with mapped faults and occur within the region between the mapped faults.

Convergence of the Juan de Fuca and the North American plates along the CSZ generates subduction interface earthquakes. The earthquakes are generated by sudden rupture along the upper, brittle part of the Juan de Fuca-North American plate boundary. Subduction interface earthquakes are infrequent, but when they do occur, they can be up to M_W 9+. Subduction interface earthquakes of this magnitude have not been recorded in the Pacific Northwest in written history, but geologic evidence along the Pacific Coast, from Northern California to British Columbia, indicates that multiple CSZ subduction interface earthquakes of M_W 8+ to M_W 9 have occurred during the last 10,000 years (e.g., Atwater et al. 1995; Clague at al. 2000; Atwater et al. 2005; Kelsey et al. 2005; Nelson et al. 2006). The last known subduction interface earthquake in the Pacific Northwest occurred in January 1700, just over 300 years ago, with an estimated M_W of 8.7-9.2 (Cascadia Department of Bioregion n.d.). Geological evidence indicates that such earthquakes with M_W 9.0 or greater have occurred at least seven times in the Pacific Northwest over the last 3,500 years. This represents an average recurrence return interval of 400 to 600 years (PNSN n.d.).

As the Juan de Fuca plate subducts beneath the North American plate, the increase in rock and bending stresses within the plate can lead to subduction in-slab earthquakes. In-slab earthquakes have lower maximum magnitudes and are deeper than megathrust subduction interface earthquakes. Most CSZ in-slab earthquakes have been recorded beneath the Puget Sound region; the largest historical in-slab earthquakes are the 1949

M_W 6.9 Olympia, the 1965 M_W 6.7 Seattle-Tacoma, and the 2001 M_W 6.8 Nisqually earthquakes. The return time of in-slab earthquakes is about every 30 to 50 years (EERI and WMDEMD 2005).

The subduction of the Juan de Fuca plate also compresses and deforms the western edge of the North American plate to form crustal faults and folds. Crustal fault earthquakes are caused by rupture of shallow faults that extend to depths of up to 15 miles. Background earthquakes are generated by unmapped and deeper faults within the shallow crust away from known and mapped faults.

In addition to the major types of earthquakes that occur in the Pacific Northwest, the region's active volcanoes can also cause earthquakes. Volcanic earthquakes are not caused directly by tectonic plate motion, but rather occur during upward migration of molten rock (magma) beneath and within the present-day volcanoes of the Cascade Ranges. These earthquakes are local to the volcanic centers and typically are not felt away from the volcano and its immediate surrounding area. During larger volcanic eruptions, such as Mount St. Helens in 1980, volcanic earthquakes may cause strong shaking several miles from the volcano.

Project-specific Earthquake Hazards

The State of Washington experiences more than 1,000 earthquakes annually. Over the last 125 years, Washington has experienced more than 20 damaging earthquakes. Most of the earthquakes that happen in Washington occur in western Washington, but several have occurred east of the Cascade crest. For instance, the 1872 M_W 6.8 Lake Chelan earthquake occurred in eastern Washington and is one of the state's largest recorded earthquakes (Benton County 2019).

Within central Washington, the Wallula Fault Zone runs through Benton County. The Wallula Fault Zone is an integral feature of the Olympic-Wallowa Lineament and the YFTB. It is a prominent northwest-striking fault zone that extends from near Milton-Freewater, Oregon, to near Kennewick, Washington. Researchers have suggested that the fault zone has the potential to produce an M_W 7.5 earthquake. If an earthquake of this magnitude were to occur, it would generate very strong ground shaking with the potential to cause surface cracking, soil liquefaction, and damage to infrastructure throughout Benton County (Benton County 2019).

Surface Fault Rupture

The initial displacement along a fault, also referred to as a fault rupture, releases energy that moves away from the fault as seismic waves. In larger earthquakes that have a moment magnitude of 6, the fault can rupture to the ground surface. Surface fault rupture results in large differential ground displacements of up to 30 feet. Surface fault ruptures can cause structural damage to buildings, bridges, and other infrastructure located across the fault rupture.

Project-specific Hazard - Surface Fault Rupture

While tectonic plate subduction zones along the Pacific Coast can produce large, devastating earthquakes, the smaller faults within the eastern part of Washington typically produce small to moderate size earthquakes. Benton County and its neighboring counties experienced approximately 4,200 earthquakes between 1969 and 2018. The largest concentrations of earthquakes occurred in the northwest corner of Benton County and the vicinity of Wooded Island in the Columbia River. A swarm of earthquakes near Wooded Island occurred in 2009, and a similar cluster occurred southeast of Prosser in 2000. The largest earthquake to occur as part of the Wooded Island and Prosser events had a magnitude of 3.0 (Benton County 2019).

Figure 3.2-5 shows earthquake epicenters surrounding the Lease Boundary. Earthquake epicenters are not known to have been located within the Lease Boundary. Three earthquakes of M_W 4.3 occurred in 1979 and

1991, with epicenters located outside of Benton County but within 50 miles of the Lease Boundary (USGS n.d.[a]). Larger historical earthquakes greater than M_W 4 are unknown to have occurred in Benton County. Earthquake data obtained from the Pacific Northwest Seismic Network (PNSN) indicate that 48 earthquakes of M_W <4 have had epicenters within about 20 miles of the Lease Boundary, with three epicenters of M_W 3 to 3.7 occurring adjacent to the Lease Boundary (PNSN n.d.).

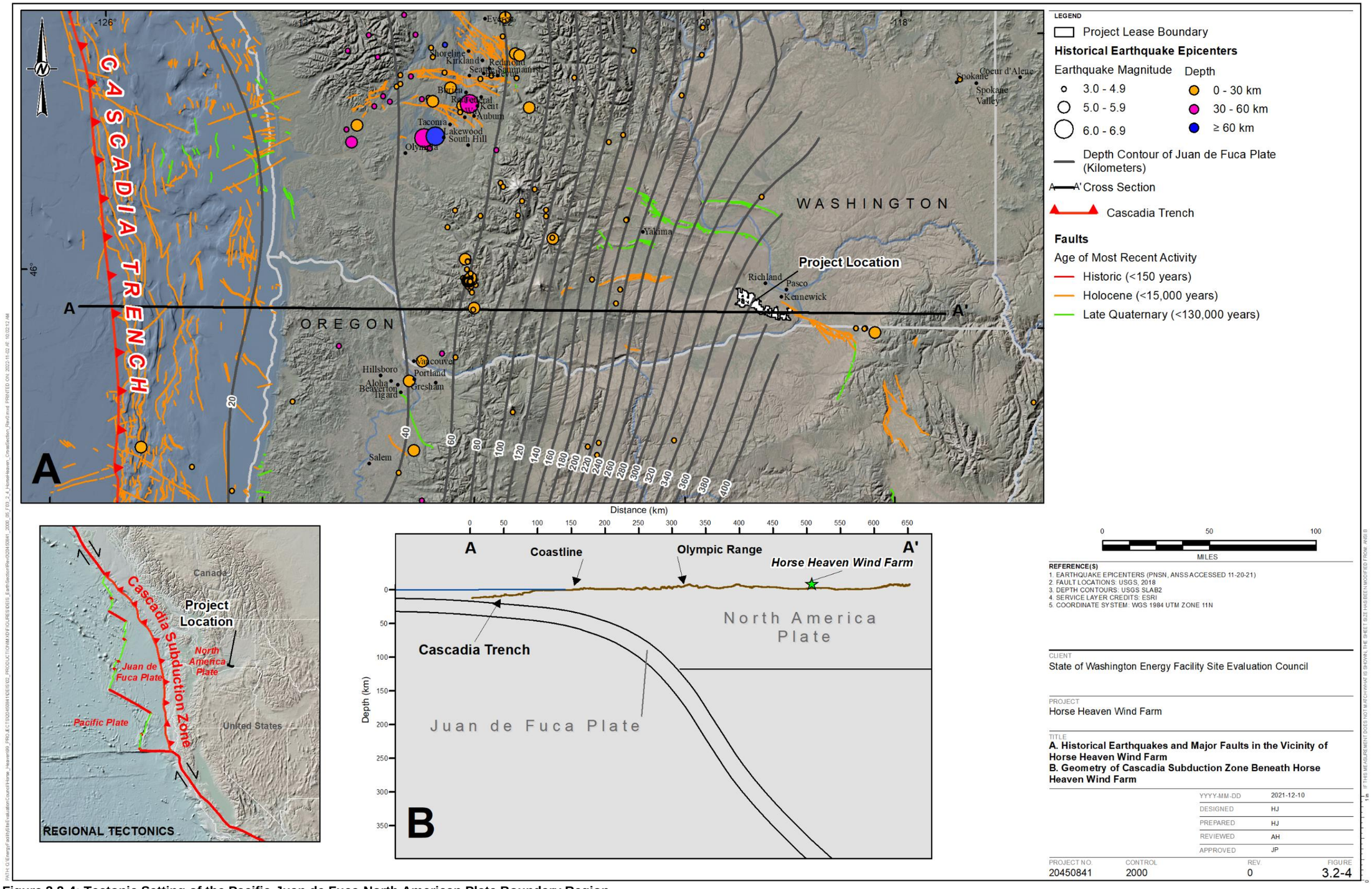

Figure 3.2-4: Tectonic Setting of the Pacific-Juan de Fuca-North American Plate Boundary Region

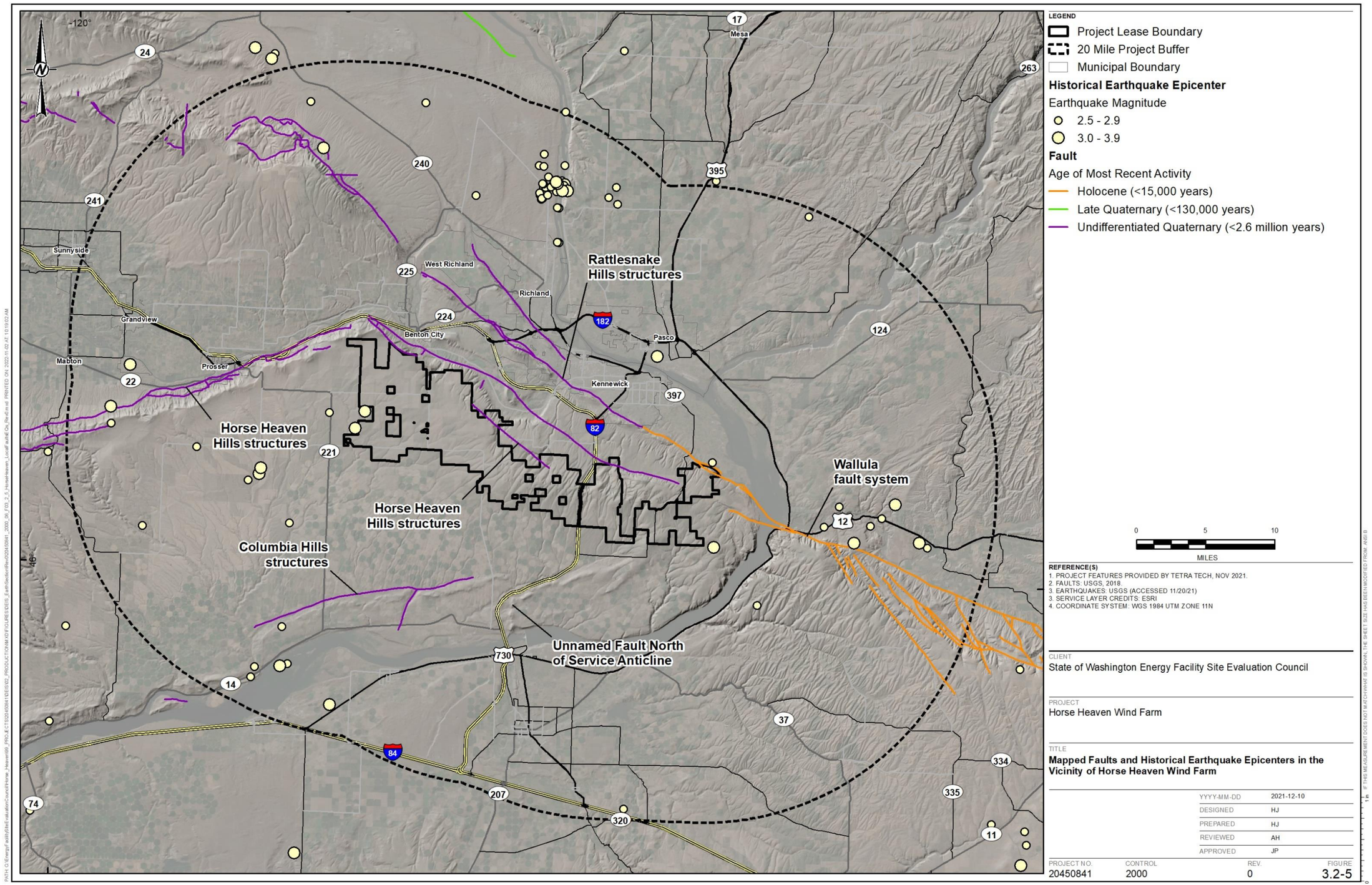

Figure 3.2-5: Earthquake Epicenters within the Project Region

The northeast- and northwest-trending, Quaternary (<2.6 million years old) thrust faults identified beneath the Horse Heaven Hills are present along the northern edge of the Lease Boundary. The northeast-trending faults underlying the Columbia Hills are located south of the Lease Boundary. To the southeast of the Horse Heaven Hills, and east of the Lease Boundary, are the northwest-trending, strike-slip faults of the Wallula fault system. The Wallula fault system is a prominent northwest-striking fault zone that extends from near Milton-Freewater, Oregon to near Kennewick, Washington. These fault locations are inferred, as accurate locations for the faults are not well known. The absence of mapped fault traces and instrumentally recorded earthquakes suggests that surface fault rupture is not a potential hazard within the Lease Boundary.

Strong Ground Shaking

Strong ground shaking from earthquakes is the most widespread hazard in the Pacific Northwest. Strong ground shaking during an earthquake can cause damage to engineered structures. Earthquake damage from shaking at a given location depends on:

- The structure of the earth between the earthquake source and the site (i.e., travel path)
- The properties of the near-surface soil and rock beneath the site
- The type, design, and construction of the structures subjected to the shaking

The intensity of earthquake ground motion is measured by several parameters. The horizontal peak ground acceleration (PGA) is the largest acceleration experienced by the ground at a given location during earthquake shaking. The U.S. Geological Survey (USGS) has developed the Unified Hazard Tool, which can be used to estimate a project-specific PGA and other important information used by engineers in designing facilities to resist earthquake shaking.

Properties that have a high risk of seismicity are in regions that have a 10 percent or greater probability of the maximum PGA equal to or greater than 0.15 gravity at any point in a 50-year period (Fannie Mae 2017). The USGS Unified Hazard Tool indicates that the Lease Boundary maintains a 2 percent probability of experiencing strong ground shaking within a 50-year period (USGS n.d.[b]).

Soil Liquefaction

Soil liquefaction is the temporary change of sandy soil from a solid state to a state with properties more like a liquid than a soil. Seismic liquefaction typically occurs when loose sandy or silty sand soils with poor drainage are saturated and experience strong ground shaking (Youd and Idriss 2001). Soils most prone to liquefaction are saturated, non-cohesive soils in areas that are frequently saturated near the ground surface. Soils susceptible to liquefaction are typically less than 50 feet bgs. Loose to medium dense sands, or soft to medium-stiff, low plasticity silts, are particularly susceptible to liquefaction because earthquake ground shaking can increase the pore pressures in the saturated soil materials.

The potential for liquefaction increases when ground shaking is prolonged. For example, megathrust subduction interface earthquakes tend to have more than 1 minute of strong shaking and are, therefore, more likely to induce liquefaction in susceptible soils. Liquefaction can result in ground settlement and sideways movement into surrounding areas along riverbanks or stream channels. This settlement can contribute to the loss of some bearing capacity for both shallow and deep foundations. Liquefaction-induced dynamic settlement and reduced bearing capacity can adversely affect structures.

Project-specific Hazard – Soil Liquefaction/Slope Failure/Lateral Spread

Soils most prone to liquefaction are saturated non-cohesive soils in areas that are frequently saturated near the ground surface (i.e., less than 50 feet bgs). The Applicant's preliminary geotechnical investigation report finds that the soils within the Lease Boundary are silts with varying amounts of sand extending from 5 to 60 feet bgs with no observable groundwater. The results presented in the 2022 ASC are in alignment with the USDA NRCS Soil Survey, which indicates that the soils within the Lease Boundary are generally well drained and that approximately 98 percent of the soils maintain moderate permeability and moderate runoff potential. Within the Lease Boundary, the Benton County Geologically Hazardous Areas Map shows restricted areas of moderate to high potential for liquefaction (Benton County n.d.). These soils are inferred as soft to stiff, with soil Site Class D to E, as used in the 2018 IBC/ASCE 7-16 building code.

Tsunamis and Seiches

Tsunamis are long-duration (i.e., more than 20 minutes) ocean waves that are usually generated offshore by earthquakes, landslides, and volcanic eruptions that displace the seafloor. Tsunami waves can reach from a few feet to tens of feet in height and can inundate coastal and nearby low-lying inland areas. Tsunami risk is greatest near ocean shorelines and river mouths. Landslides generated on land that enter waterbodies with enough force to displace water can also cause localized tsunami waves. These localized tsunamis can occur along rivers, lakes, or ocean shorelines.

Seiches are oscillating water waves that can occur in any enclosed or partially enclosed waterbodies such as lakes and rivers. Seiches are caused by earthquakes, volcanic activity, landslides, or extreme wind or weather events (USGS n.d.[c]). Seiches are hazardous when their extreme vertical waves approach shallow water or shorelines.

Project-specific Hazards – Tsunamis and Seiches

Coastal tsunamis are generated by earthquakes from the CSZ. They are not a potential hazard within the Lease Boundary as the Project is more than 250 miles from the Pacific Coast and 604 to 2,051 feet above mean sea level. Additionally, there are no major rivers or other perennial streams within the Lease Boundary.

After the 1964 Alaska earthquake, very minor (<1 foot) seiches were reported in the non-free-flowing upper section of the Columbia River system from McNary Reservoir (8 miles south of the site) to Franklin D. Roosevelt Lake (Grand Coulee Dam) (McGarr and Vorhis 1968). As previously noted, the Columbia and Yakima Rivers are topographically lower than the Lease Boundary and not subject to potential river and lake seiche effects.

Landslide Hazards

The USGS defines a landslide as the movement of a mass of rock, debris, or earth down a slope under the direct influence of gravity (USGS n.d.[d]). Landslide-caused disaster events within the State of Washington are a rare occurrence. Landslides are rare, but when they do occur, they have a major impact on the state's transportation systems, communities, and natural resources, causing severe property damage and loss of life. If the right conditions of soil, moisture content, and slope angle exist, landslides can occur on nearly any ground. Heavy rain, rapid snowmelt, flooding, earthquakes, vibrations, and other natural conditions or human-induced events can trigger a landslide (Benton County 2019).

The State of Washington has six landslide provinces: Olympic Mountains, Southwest Washington, Puget Lowland, Cascades, Columbia Plateau, and Okanogan Highlands. Benton County is part of the Columbia Plateau (Basin) landslide province. Landslides in this province include slope failures in bedrock along the soil interbeds

and in the overlying catastrophic flood sediments and loess deposits. These landslides usually move along sediment interbeds within the Columbia River Basalts (Benton County 2019). Benton County experienced only one major landslide between 1984 and 2014. The Prosser landslide occurred in 1986 and 1987 during the construction of Interstate 82 when interstate construction remobilized several very large, prehistoric landslide complexes (DNR 2015).

General Landslide Hazards

Landslides include rockfalls, slides, slumps, and debris flows. Gravity is the dominant force behind landslides, but water, wind, or large-scale disturbances such as earthquakes or volcanic activity can also trigger landslides and slope failures. Steep and/or unstable slopes are at the greatest risk of producing landslides. Other factors that influence the probability of a slide include soil type and thickness, geological structure, vegetative cover, soil conditions and soil saturation, and the amount, rate, and duration of precipitation. Landslide hazard areas are typically defined as areas that, due to a combination of slope inclination, soil type, geological structure, and the presence of water, are susceptible to failure and subsequent downhill movement.

Project-specific Hazards – Landslide Hazards and Ground Instability

As illustrated in **Figure 3.2-6**, the Lease Boundary includes areas identified as susceptible to erosion, landslides, and bluff failures. The Applicant has also identified two Quarternary mass-wasting deposits (i.e., historic landslides) just within the northern edge of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022).

Ground instability can result from underground caves and voids in rocks. This type of instability can be particularly hazardous in places where karst features such as caves develop slowly, and rapid failures can result in several feet of instantaneous subsidence. Karst features generally develop in areas of water-soluble rock that dissolve over time. The USGS map of karst hazard potential in the United States does not show the Lease Boundary as having karst potential (Weary and Doctor 2014).

The basalt underlying the Lease Boundary and wider region is a volcanic rock without karst formations. Volcanic lava rocks can form voids or lava tubes; however, the Applicant's preliminary geotechnical investigation report did not indicate a sudden loss of core fluid that would be indicative of a void in the rock (Horse Heaven Wind Farm, LLC 2022).

Volcanic Hazards

Cascade Range volcanoes have produced more than 100 eruptions in just the past few thousand years. Cascade volcanoes have the potential to cause widespread disasters. As Cascade volcanoes erupt, they can produce the following adverse conditions:

- **Ashfall:** This effect results when ash is forcibly ejected by a volcanic explosion and becomes airborne. Volcanic ash can become suspended in the air and travel great distances from the volcanic vent, entrained by the wind, before falling to the ground.
- **Lahars:** This component of a volcanic eruption occurs when volcanic ash and other debris mix with a water source to form volcanic mudflows. Lahars are typically generated during and after significant eruptions, when large volumes of loose volcanic ash are present along the flanks of a volcano. Lahars may continue to mobilize loose debris for years after the event. Lahars are very fast-moving, capable of destroying bridges, roads, and other infrastructure along drainage paths.

- **Debris flows:** Like lahars, debris flows contain a higher concentration of volcanic debris, but with lower water content. Debris flows are not easily mobilized and are extremely dense, capable of causing significant damage.
- **Lava flows:** Lava flows are streams of molten rock that pour or ooze from an erupting vent. Lava erupts during either nonexplosive activity or explosive lava fountains.
- **Pyroclastic flows:** These flows are chaotic blasts of volcanic ash, hot gases, and rock debris, usually generated from the collapse of an eruption column. Pyroclastic flows can spread out in any direction from a volcanic vent at very high speeds and are not restricted to drainage channels, unlike lahars, debris flows, and lava flows.
- **Other Effects:** Massive landslides can occur if the portions of a volcano collapse during an eruption, as seen in the Mount St. Helens eruption in May 1980. Another hazard is the seismicity associated with volcanic activity, which may trigger earthquake events. Significant volcanic activity is generally preceded by weeks to months of increased seismicity. The Pacific Northwest is extensively monitored by the USGS and the Cascades Volcano Observatory with an advanced seismic network.

For example, Benton County experienced adverse impacts from the disbursement of ash from the May 18, 1980, eruption of Mount St. Helens as it caused major crop losses, interruptions in dairy production, and disruptions to the county's transportation system (Benton County 2019).

Regional Volcanic Hazards

The Cascade Range volcanic centers extend from Lassen Peak in northern California in the south to Mount Baker in Washington near the border with Canada in the north. The Cascade volcanoes are periodically active and can be expected to produce volcanic eruptions in the future (USGS n.d.[e]). The active volcanism is part of the subduction process of the Juan de Fuca plate beneath North America. The volcanoes in the Cascade Range have both effusive and explosive eruption histories with ashfall, lahars, debris flows, lava flows, pyroclastic flows, and landslides.

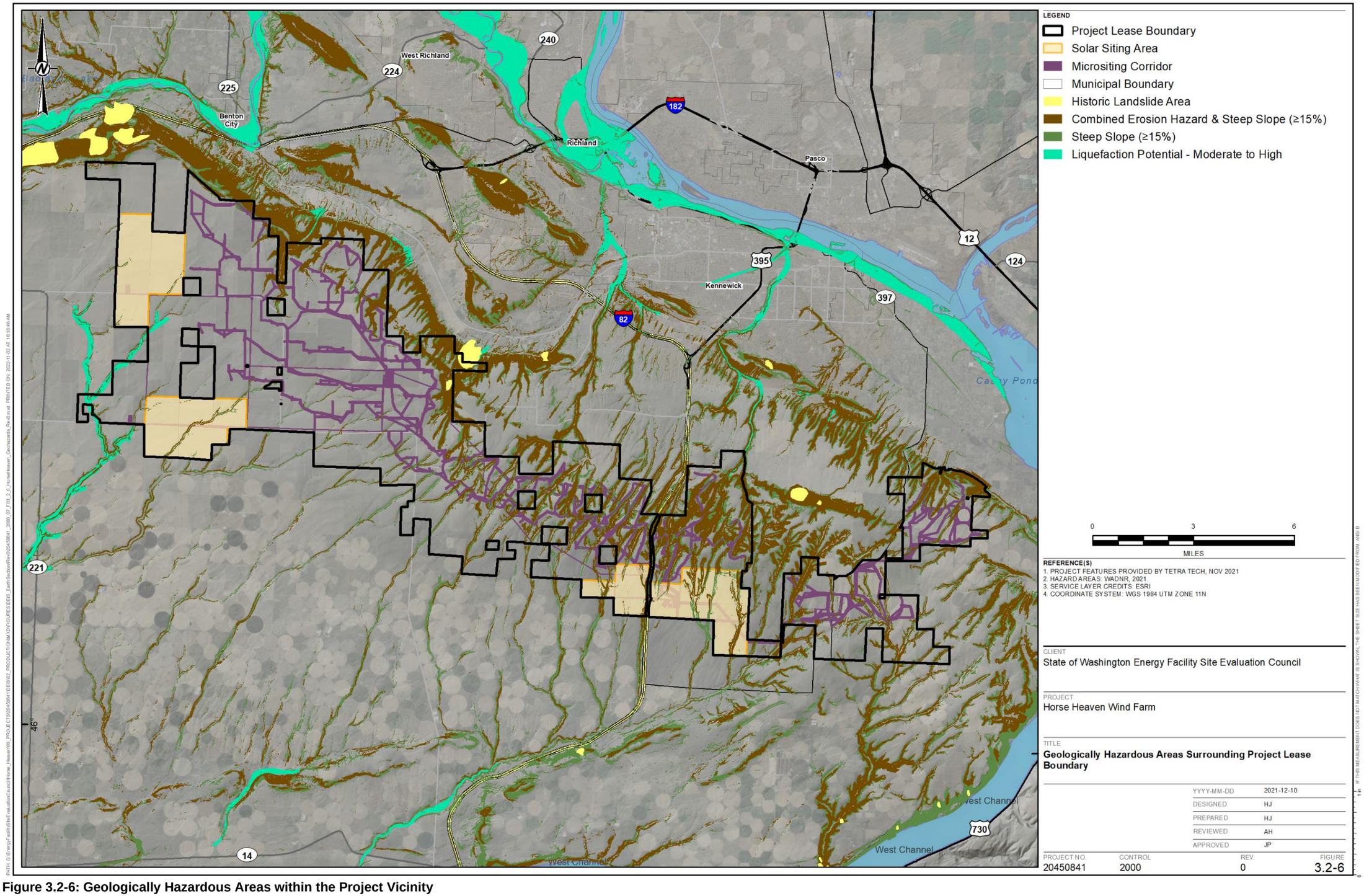

Figure 3.2-6: Geologically Hazardous Areas within the Project Vicinity

Project-specific Volcanic Hazards

The Lease Boundary is underlain by effusive basaltic lava flows, deposited a million years ago under a very different volcanic regime than currently exists. The volcanic vents that produced these lavas are no longer considered capable of generating new eruptions. Washington has five Cascade volcanoes that the USGS has listed as having a high or very high threat potential: Mount Baker, Glacier Peak, Mount Rainier, Mount St. Helens, and Mount Adams. **Figure 3.2-1** illustrates the location of these volcanoes in relation to the Lease Boundary. The two nearest volcanoes to the Lease Boundary are Mount Adams and Mount St. Helens, described below:

- **Mount Adams:** This volcano is approximately 90 miles west of the Lease Boundary. It has not been active in recent history, but it was active from about 520,000 to about 1,000 years ago. Eruptions have occurred from 10 vents since the last period of glaciation about 15,000 years ago.
- **Mount St. Helens:** Mount St. Helens is the closest historically active volcano to the Lease Boundary, at approximately 125 miles west of the Project site. Its most recent major eruption was in 1980, when it erupted and subsequently collapsed. The heaviest ash deposition occurred in a 60-mile-long swath immediately downwind of the volcano. Another area of thick ash deposition occurred near Ritzville in eastern Washington, about 195 miles from Mount St. Helens, where nearly 2 inches of ash blanketed the ground, more than twice as much as at Yakima, which is only about half as far from the volcano (Moen and McLucas 1981).

The Lease Boundary is located more than 80 miles from areas considered subject to volcanic hazards by the USGS (Washington Division of Geology and Earth Resources 2016). The potential hazard to the Lease Boundary from volcanic flow deposits is in part determined by the mapping of existing flows. The distribution of lahar deposits and lava flows associated with Mount Adams and Mount St. Helens has not historically reached the area near the Lease Boundary.

Renewed volcanic activity may trigger earthquakes, and volcanic ash could reach, and cover, the Lease Boundary from an eruption at one of the Cascade Range volcanoes. The main hazard from volcanic activity at the Lease Boundary is the deposition of volcanic ash following large eruptions in the Cascade Range. Prevailing wind directions in the Pacific Northwest blow toward the north and northeast. The USGS estimates a 0.1 to 0.2 percent annual probability of 4 inches or more ash accumulation near the Lease Boundary from an eruption of major Cascade volcanoes (Wolfe and Pierson 1995).

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3.3 Air Quality

This section describes the existing air quality and regulatory setting in the proposed Horse Heaven Wind Farm (Project, or Proposed Action) vicinity. Section 4.3 presents an analysis of the Project's potential impacts on air quality. The Project vicinity includes the areas 4 miles south/southwest of Kennewick, Washington, in Benton County, and the larger Tri-Cities urban area along the Columbia River. The Project's consistency with relevant air quality standards, regulations, goals, and policies is evaluated in Section 4.3.

Regulatory Setting

Federal

The U.S. Environmental Protection Agency (EPA) regulates national air quality under the Clean Air Act (CAA), the primary federal statute governing air quality. The EPA has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants:

- Carbon monoxide (CO)
- Nitrogen dioxide (NO_2)
- Particulate matter
  - less than 10 microns (PM_{10})
  - less than 2.5 microns ($PM_{2.5}$)
- Ozone (O_3)
- Sulfur dioxide (SO_2)
- Lead (Pb)

The NAAQS are designed to protect public health and welfare with an adequate margin of safety. NAAQS are expressed in concentration levels in ambient air, averaged over a specific time interval. Washington ambient air quality standards are identical to the NAAQS (see Washington Administrative Code [WAC] 173-476, Ambient Air Quality Standards). Local air quality is measured relative to these national and state standards. Areas that comply with the NAAQS are designated "attainment areas." Areas that fail to meet the standards are designated "non-attainment" areas.

Under the CAA, the EPA requires each state to prepare, adopt, and administer a State Implementation Plan (SIP) to ensure that air quality in non-attainment areas is gradually brought into compliance with the NAAQS and that good air quality is maintained in areas that already attain the NAAQS. The SIP must consider the impact of both stationary and nonstationary sources of air pollution. In Washington, the Department of Ecology (Ecology) is the agency generally responsible for the SIP and overall air quality management.

State

The Washington Energy Facility Site Evaluation Council (EFSEC) has overarching responsibility for air quality standards compliance for energy facilities pursuant to WAC 463-62-070:

> "Air emissions from energy facilities shall meet the requirements of applicable state air quality laws and regulations promulgated pursuant to the Washington State Clean Air Act, chapter 70.A.15 RCW, and the Federal Clean Air Act (42 U.S.C. 7401 et seq.), and chapter 463-78 WAC."

In addition, 463-78 WAC adopts several provisions from WAC 173-400 regulations including key applicable provisions discussed in Section 3.3.1.2 below.

Local

The Benton County Clean Air Agency (BCAA) has local rules and regulations for potential sources of air pollution which are subsumed under EFSEC review for energy facilities.

Stationary Source Regulations

The SIP developed by Ecology and EFSEC includes both prohibitory rules (e.g., emission limits) for existing stationary sources of air pollution and rules for permitting new stationary sources of air pollution in both attainment and non-attainment areas of the state. Local air authorities, such as the BCAA, may impose additional requirements. EFSEC has EPA-delegated authority for issuance of air permits for energy facilities under its jurisdiction pursuant to WAC 463-78-095.

Any new stationary emissions source that exceeds certain thresholds must generally obtain a preconstruction air quality permit by demonstrating that it would comply with all applicable federal, state, and local air quality requirements, including emissions standards and ambient air quality standards.

New sources of air emissions in non-attainment areas must generally satisfy more rigorous requirements than equivalently sized sources in attainment areas to bring the area back into compliance with air quality standards. The two most common permits associated with regulated air pollutants emitted by stationary industrial activity are Notice of Construction/New Source Review approvals and Prevention of Significant Deterioration permits.

The Project would not be located within a non-attainment area for any criteria pollutants (EPA 2023). The only stationary sources of emissions associated with the Project are a portable concrete batch plant and backup diesel-fired power generators to support construction of the Project. Neither would be permanent sources of air pollution. A Notice of Construction approval would be required from EFSEC, with support from BCAA. A supplemental environmental analysis that includes an air quality impact assessment for these sources has been prepared (Tetra Tech 2023), and the results of the evaluation are included in Section 4.3.

Nonstationary and Fugitive Emission Source Regulation

Although construction emissions are not included in the permitting of stationary sources, mobile sources (such as construction equipment and maintenance pickups) are regulated separately under the federal CAA. Nonstationary emission sources, such as ships, trains, motor vehicles, and on-road and off-road construction equipment, are not generally required to obtain preconstruction air quality permits. Instead, nonstationary emission sources may be required to comply with mobile source emission standards established by the EPA. Mobile source regulations generally apply to mobile source equipment manufacturers prior to sale, who must certify that their equipment complies with applicable standards.

Washington State and the BCAA regulate “fugitive” air emissions not emitted through a chimney, smokestack, or similar facility. A common example of fugitive air emissions is dust blowing from construction sites, unpaved roads, and tilled agricultural fields. Wind and solar energy plants are not included among the facilities for which review and permitting of fugitive emissions are required (WAC 173-400). Nevertheless, WAC 173-400-040(9)(a) requires owners and operators of fugitive dust sources to take reasonable measures to prevent dust from becoming airborne and minimize emissions.

Other Washington State regulations that apply to nuisance emissions, including fugitive dust, and various equipment used during construction, include:

- WAC 173-400-040(3) Fallout. Prohibits emission of particulate matter from any source to be deposited beyond the property line in quantities that would interfere with the use and enjoyment of the impacted property
- WAC 173-400-040(4–4a) Fugitive emissions. Requires reasonable precautions to prevent the release of air contaminants from materials handling, construction, demolition, or other fugitive emissions sources
- WAC 173-400-040(5) Odors. Requires good practice and procedures to minimize odors that may interfere with another property owner's use and enjoyment of their property

In addition to the above, the BCAA requires (prior to commencement of construction):

- Notification of any work that would generate fugitive air emissions (BCAA Regulation 1 Article 4 Section 4.02.C)
- Preparation and implementation of a dust control plan that identifies management practices and operational procedures to control fugitive dust emissions (BCAA Regulation 1 Article 4 Section 4.02.E)

Climate Change – Greenhouse Gas Emissions

Greenhouse gases (GHGs) absorb infrared radiation in the atmosphere. The infrared radiation is selectively absorbed or "trapped" by GHGs, and heat is then reradiated back toward the earth's surface, warming the lower atmosphere and the earth's surface. Atmospheric concentrations of GHGs have risen dramatically since the Industrial Revolution. This has resulted in gradually increasing global temperature, thereby increasing the potential for indirect effects such as:

- Decrease in precipitation as snow
- Gradual melting of polar ice caps
- Increase in severe weather
- Changes to plant and animal species and habitat
- Rise in sea level

Climate impacts are not attributable to any single action but are exacerbated by diverse individual sources of emissions that each make relatively small additions to GHG concentrations.

Both natural processes and human activities emit GHGs. Human activities known to emit GHGs include industrial manufacturing, utilities, transportation, residential activities, and agricultural activities. The GHGs that enter the atmosphere because of human activities are CO_2, methane, nitrous oxide, and fluorinated carbons (hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride).

In 2020, the Washington Legislature set new GHG emission limits in order to combat climate change. Under the law, the state is required to reduce emissions levels as follows:

- 2020 – reduce to 1990 levels
- 2030 – reduce to 45 percent below 1990 levels

- 2040 – reduce to 70 percent below 1990 levels
- 2050 – reduce to 95 percent below 1990 levels and achieve net zero emissions (Ecology n.d.)

In 2022, the Washington Legislature set a new rule, Chapter 173-446 WAC, Climate Commitment Act Program**.** The Climate Commitment Act requires Ecology to adopt rules to implement the cap-and-invest program to achieve Washington's goal of net zero greenhouse gas emissions by 2050 (Ecology n.d.).

WAC 173-441 establishes an inventory of GHG emissions through a mandatory GHG reporting rule for certain operations. Because wind and solar power do not emit GHGs during operations, these regulations would not apply to the Project (Horse Heaven Wind Farm, LLC 2022).

3.3.1 Affected Environment

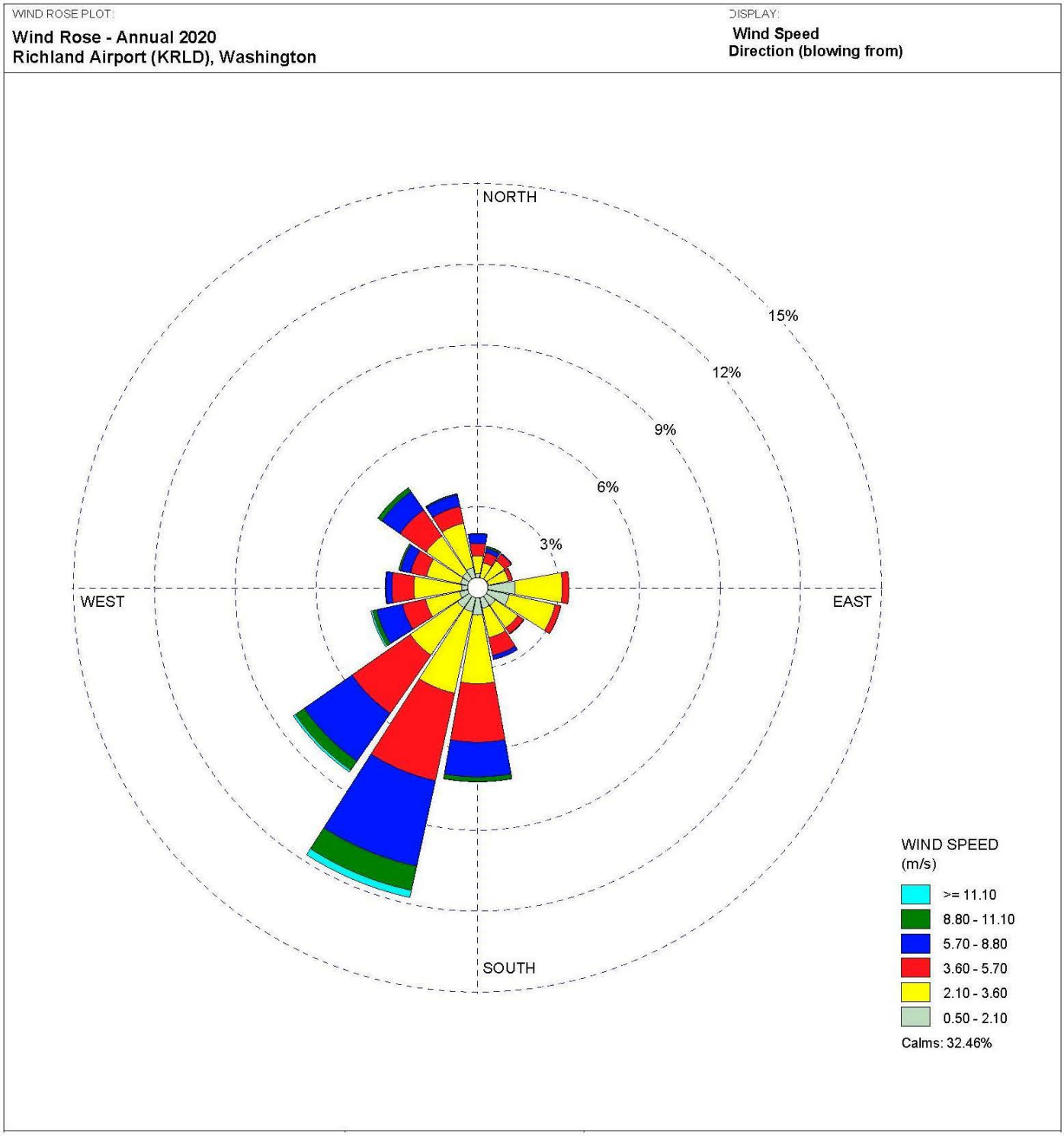
The following subsections discuss regional climate, emission inventory, and air quality conditions in the Project vicinity.

3.3.1.1 Regional Climate

Benton County is located within a rain shadow created by the Cascade Mountains, which causes a decrease in precipitation to the east. In this region of Washington, the summers are hot and mostly clear, winters are cold and partly cloudy, and it is typically dry year-round (on average, there are nearly 200 days of sunshine). The average annual precipitation at Kennewick, one of the cities closest to the Lease Boundary, is 7.7 inches. In winter, temperatures in Kennewick average a high of 43 degrees Fahrenheit (°F) and a low of 29.6°F, with extreme lows below 10°F. In summer, temperatures average a high of 87.1°F and a low of 59.6°F, with extreme highs above 100°F. The average relative humidity is 64 percent (Horse Heaven Wind Farm, LLC 2022).

Wind speed, wind direction, and atmospheric stability strongly influence air quality conditions. Stronger winds improve local ventilation rates, increase atmospheric mixing, and generally improve dispersion of local point source emissions. However, higher winds can also contribute to windblown fugitive dust. **Figure 3.3-1** and **Figure 3.3-2** depict wind speed, wind direction, and stability parameter observations taken from the Richland, Washington meteorological station (KRLD), which is the closest station to the Project (Horse Heaven Wind Farm, LLC 2022). The annual information provided in these figures is based on one full year of data from 2020.

Figure 3.3-1 shows the average annual wind speed and direction for the year 2020 in Richland, in a graphic form known as a “wind rose.” The rings in this figure represent the percentage of the year that the wind blows from each of the 16 compass directions, with color-coded bands depicting wind speed categories within each compass direction. Wind in the Project vicinity blows predominantly from the southwest quadrant, with less frequent winds possible from other directions.

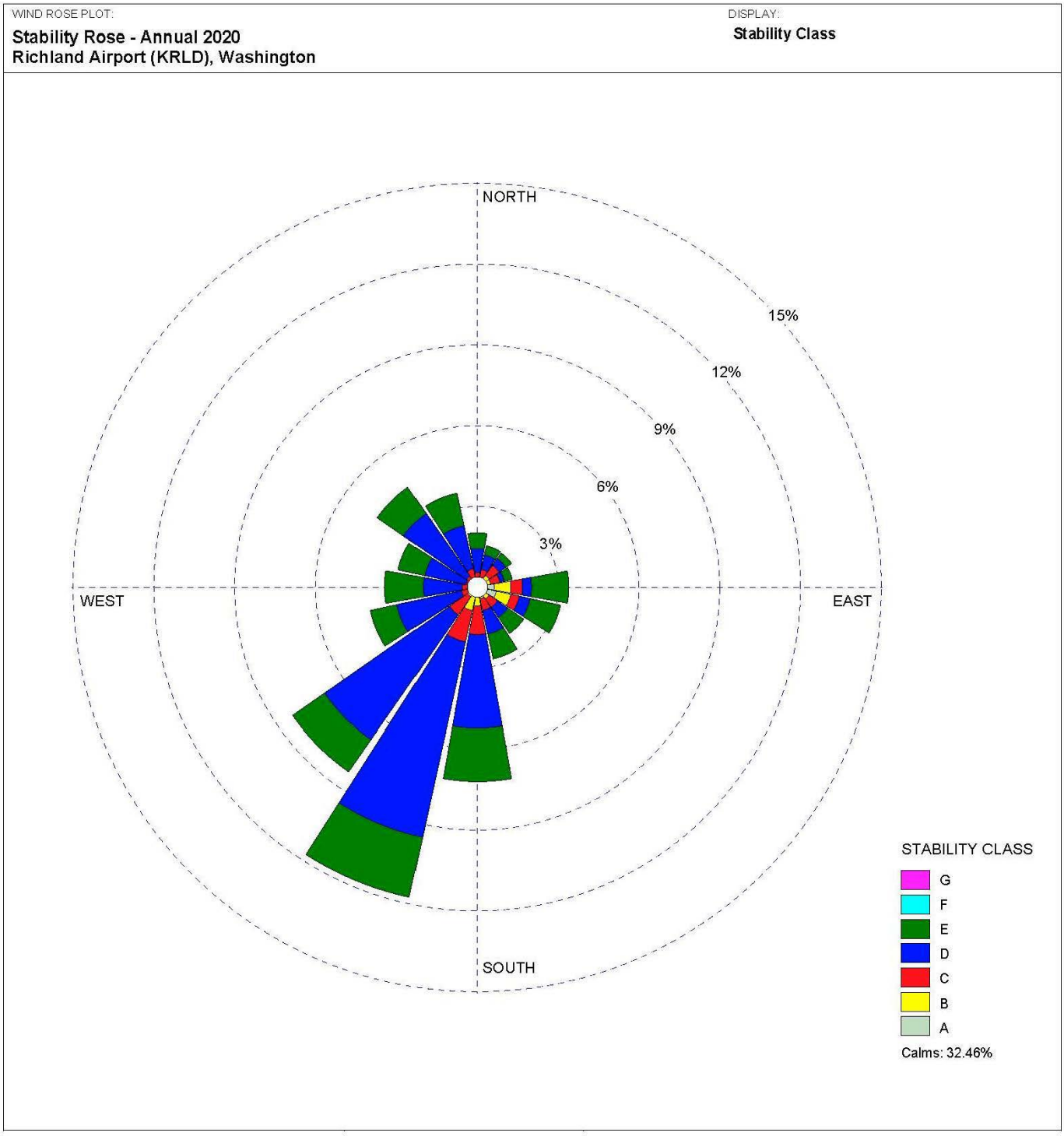


Source: Horse Heaven Wind Farm, LLC 2021

Figure 3.3-1: 2020 Wind for Richland, Washington, Meteorological Station

Wind conditions near the Lease Boundary over a longer period can be characterized by Automated Surface Observing Systems (ASOS), which serve as the nation's primary surface weather observing network. The closest ASOS station to the Lease Boundary is located at the Tri-Cities Airport in Pasco, Washington (KPSC). Based on data collected from January 1, 1990, to December 31, 2019, the prevailing winds most frequently blow from the southwest (approximately 24 percent of the time) and the north-northwest (approximately 24 percent of the time), with calm conditions (less than 2.0 miles per hour) occurring approximately 23 percent of the time. The average wind speed for this period was approximately 6.7 miles per hour (3.0 meters per second) (Horse Heaven Wind Farm, LLC 2022).

Atmospheric stability, which refers to a lack of vertical air movement, plays an important role in air quality because air contaminants are not dispersed as quickly or widely when the atmosphere is stable (Hanna et al. 1982). Atmospheric stability is generally characterized according to the Pasquill-Gifford scheme, which ranges from Class A (most unstable) to Class G (most stable). **Figure 3.3-2** shows the average atmospheric stability in Richland 2020. Similar to the wind rose in **Figure 3.3-1**, in this "stability rose," the spokes in the figure depict wind direction, but here the colors represent the atmospheric stability associated with each wind direction. The figure shows that unstable to neutral (Class A–D) atmospheric conditions, which promote acceptable pollutant dispersion, predominate in all compass directions in the Richland area and that highly stable conditions (Class F and G) with reduced atmospheric mixing are less frequent.

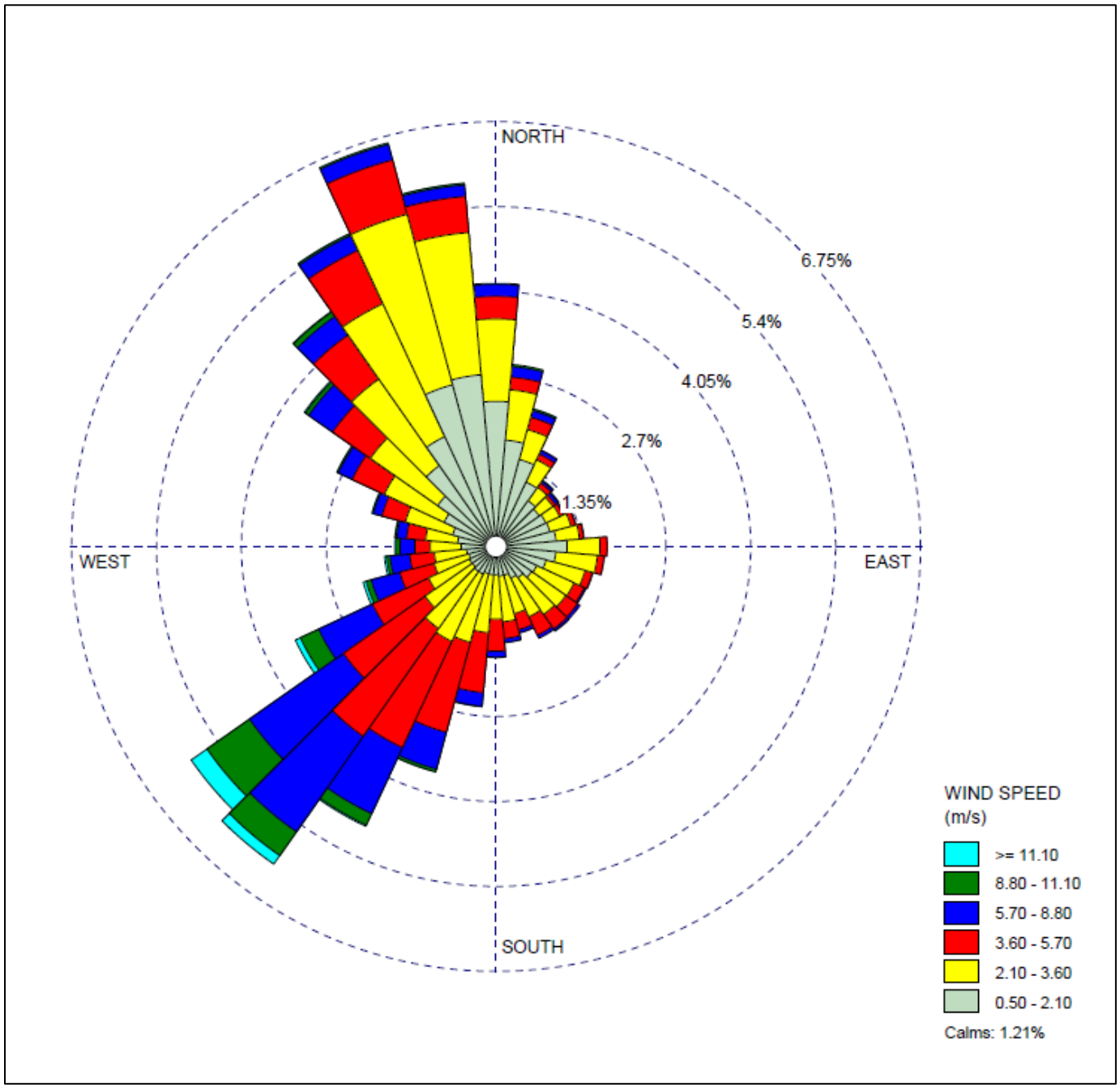


Source: Horse Heaven Wind Farm, LLC 2021

Figure 3.3-2: 2020 Atmospheric Stability for Richland, Washington, Meteorological Station

For purposes of conducting the atmospheric dispersion modeling study to assess the impacts of the stationary sources associated with construction (concrete batch plant and backup diesel-fired generators, Ecology recommended the use of a five-year hourly meteorological data set consisting of hourly surface observations of

wind speed and direction collected at the Tri-Cities Airport in Pasco, Washington, and upper air data collected by the National Weather Service in Spokane, Washington, for the period 2018 through 2022. The meteorological data were collected approximately 15 miles northeast of the Lease Boundary. A wind rose plot depicting the frequencies of wind speed and direction for this meteorological data set is provided in **Figure 3.3-3** (Tetra Tech 2023).



Source: Tetra Tech 2023

Figure 3.3-3: Five-Year Wind Rose (2018–2022) from Tri-Cities Airport, Pasco, Washington

3.3.1.2 Existing Air Quality

Background air quality conditions in the Project vicinity are somewhat difficult to determine because there are no comprehensive air quality monitors near the Lease Boundary. The monitors nearest to the Lease Boundary are located in Kennewick, Washington (with the monitor located approximately 4 miles to the north) and measure ozone and PM_{10}. The nearest $PM_{2.5}$ monitors are in Pendleton, Oregon (approximately 35 miles southeast of the Lease Boundary) and Toppenish, Washington (approximately 40 miles northwest of the Lease Boundary). The nearest SO_2 monitor is in Wenatchee, Washington (approximately 80 miles north of the Lease Boundary). The nearest CO monitor is in Portland, Oregon (approximately 155 miles west-southwest of the Lease Boundary). The nearest NO_2 monitors are in Tacoma, Washington (approximately 157 miles northwest of the Lease Boundary) and Portland, Oregon (approximately 157 miles west-southwest of the Lease Boundary). The nearest lead monitor to the site that collected data for the three-year period 2018–2020 is located in Chico, California (approximately 450 miles south of the Lease Boundary) (EPA 2022). Air quality data for monitors near the Lease Boundary with complete records for 2018–2020 are summarized in **Table 3.3-1** (Horse Heaven Wind Farm, LLC 2022).

Based on the air quality data that have been collected, as well as regional air quality trends, the EPA has not designated Benton County, Washington, as a non-attainment area for any criteria air pollutant.

Table 3.3-1: Background Air Quality Data from Monitoring Stations near the Lease Boundary

Pollutant	Averaging Period	Units	Monitor Site	Measured Concentration[a]				NAAQS
				2018	2019	2020	Avg.	
CO	1-hour	ppm	Portland - SE Lafayette (41-051-0080)	1.9	1.8	15.1	6.3	35[b]
	8-hour	ppm		1.6	1.6	14.1	5.8	9[b]
NO_2	1-hour	ppb	Portland - SE Lafayette (41-051-0080)	35.4	31.5	29.4	32.1	100[c]
	Annual	ppb		8.6	7.7	6.4	7.6	53[d]
Ozone	8-hour	ppm	Kennewick S Clodfelter Road (53-005-0003)	0.073	0.061	0.061	0.065	0.070[e]
$PM_{2.5}$	24-hour	µg/m^3	Toppenish - Ward Rd (Yakama Nation) (53-077-0015)	50.4	34.4	90	58.3	35[f]
	Annual	µg/m^3		11.1	9.8	14.5	11.8	12.0[g]
SO_2	1-hour	ppb	Portland - SE Lafayette (41-051-0080)	2.8	2.5	2.3	2.5	75[h]
	3-hour	ppb		2.4	2.6	2.2	2.4	500[i]
Lead	Rolling 3-month	µg/m^3	Chico, CA - Chico-East Avenue (06-007-0008)	0.0935	0.0033	0.0026	0.0331	0.15[j]
PM_{10}	24-hour	µg/m^3	Kennewick - Metaline (53-005-0002)	65	566	88	240	150[k]

Source: Horse Heaven Wind Farm, LLC 2022 – data compiled from EPA AirData tool, https://www.epa.gov/outdoor-air-quality-data

Notes:

[a] All concentrations are presented in the same statistical form as the corresponding NAAQS standard, as noted below.
[b] Not to be exceeded more than once per year. Values shown are for the maximum second highest value in each year.
[c] 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
[d] Annual mean.
[e] Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.
[f] 98th percentile, averaged over 3 years.
[g] Annual mean, averaged over 3 years.
[h] 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.
[i] Not to be exceeded more than once per year. Values shown are for the maximum second highest value in each year.

Table 3.3-1 notes, continued
(j) Not to be exceeded. Values shown are for the maximum quarterly average value in each year.
(k) Not to be exceeded more than once a year on average over 3 years. Values shown are for the maximum second highest value in each year. 2019 high concentration and 3-year average are likely influenced by wildfires in the area.
Avg. = average; CO = carbon monoxide; µg/m^3 = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter; ppb = parts per billion; ppm = parts per million; SO_2 = sulfur dioxide

For purposes of conducting the atmospheric dispersion modeling study, per guidance from Ecology, data from the NW-AIRQUEST tool were used to determine ambient background concentrations for use in the air quality analysis. The tool was created through a collaboration among Ecology, the Idaho Department of Environmental Quality, and the Oregon Department of Environmental Quality, using model and monitoring data from 2014 through 2017 to estimate background concentrations of criteria air pollutant design values at user-specified locations in Washington, Idaho, and Oregon (IDEQ 2019). A location near the center of the modeled emissions sources was specified and representative criteria pollutant design values were provided. The representative ambient air quality background concentrations are provided in **Table 3.3-2**.

Table 3.3-2: Representative Background Air Quality Data (2014–2017) Used for Dispersion Modeling Study Per Ecology Guidance

Pollutant	Averaging Period	Rank	Background Concentration (µg/m^3)	NAAQS (µg/m^3)	Ambient Background NAAQS
$PM_{2.5}$	24-hour	98th percentile	17.5	35	50%
	Annual	Mean	5.7	12	48%
PM_{10}	24-hour	2nd high	71.6	150	48%
CO	1-hour	2nd high	1,386	40,000	3%
	8-hour	2nd high	962	10,000	10%
NO_2	1-hour	98th percentile	19.0	188	10%
	Annual	Mean	3.8	100	4%
SO_2	1-hour	2nd high	12.8	196	7%
	3-hour	2nd high	17.0	1,300	1%
	24-hour	2nd high	5.8	365	2%
	Annual	Mean	1.0	80	1%

Notes:
NW-AIRQUEST- predicted background air quality levels within the project area for the grid point located at 46.130541°, -119.381191° (approximate center of locations of modeled sources)
Source: https://idahodeq.maps.arcgis.com/apps/MapSeries/index.html?appid=0c8a006e11fe4ec5939804b873098dfe
CO = carbon monoxide; NAAQS = National Ambient Air Quality Standards; NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide

3.3.1.3 Regional Emissions

Air quality in the Project vicinity is influenced by, and can be correlated to, regional emissions. Accordingly, collection of regional emissions data is a key and necessary component of air quality planning by state and regional agencies responsible for attaining and maintaining ambient air quality standards. Emission sources in Benton County are regularly tabulated and reported by Ecology for five of the six criteria air pollutants (except lead) in 24 source categories that include both natural and man-made sources. The most recently published emission inventory for Benton County (for the year 2017) is provided in **Table 3.3-3**.

Table 3.3-3: 2017 Emissions Inventory for Benton County, tons per year

Source Category	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOCs
Aircraft	122	1	3	2	0	3
Nonroad Equipment and Vehicles - Boats	889	60	4	3	0	259
Dust from Construction	-	-	5,265	526	-	-
Industrial/Commercial/Institutional Fuel Combustion	123	121	57	43	18	7
Residential Non-Wood Fuel	22	52	0	0	1	3
Fertilizer Application	-	-	-	-	-	-
Commercial Cooking	35	-	89	83	-	13
Livestock	-	-	323	67	-	37
Miscellaneous	57	1	12	10	0	104
Natural Emissions from Soil and Vegetation	1,307	111	-	-	-	3,078
Nonroad Equipment and Vehicles	4,049	674	63	61	1	304
Agricultural Burning	946	56	148	141	2	123
Residential Outdoor Burning: Yard Waste, Trash	227	6	40	39	4	25
Silivicultural Burning	15	1	3	3	0	4
On-road Mobile	14,881	2,911	154	86	7	1,658
Nonpoint Gasoline Stations, Storage, and Marketing	-	-	-	-	-	340
Large Point Sources	146	254	51	37	9	49
Dust from Roads	-	-	1,331	222	-	-
Locomotives	256	1,110	28	27	1	47
Residential Wood Combustion	677	10	77	77	2	104
Commercial Marine Vessels	-	-	-	-	-	-
Nonpoint Solvent Use	-	-	-	-	-	4,024
Dust from Agricultural Tilling and Harvesting	-	-	6,207	1,221	-	-
Wildfires	5,711	141	638	540	62	1,365
Total	29,463	5,510	14,493	3,190	106	11,548

Source: Ecology 2020
Notes (general):
1. Emissions inventory for 2017 is the most current year for which published data is available
2. Emissions are reported in whole numbers. Where a value of 0 is reported, emissions are less than 0.5 tons per year.
"-" = no emissions were reported for this pollutant for this source category
NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide; VOC = volatile organic compound

As **Table 3.3-3** shows, most emissions of oxides of nitrogen (NO_X) and CO—pollutants that result primarily from combustion—in Benton County come from mobile sources. On- and off-road, boats, aircraft, and locomotives account for about 85 and 70 percent of all NO_X and CO emissions, respectively. Natural sources and wildfires together account for about 6 and 24 percent of countywide NO_X and CO emissions, respectively. Large point sources of air pollution, on the other hand, account for less than 1 percent of countywide CO emissions and less than 5 percent of countywide NO_X emissions.

Volatile organic compounds (VOCs), together with NO_X, are the primary precursors to ozone, which is not emitted directly but rather formed in the atmosphere as a result of sunlight, heat, and complex photochemical

reactions. Natural sources and wildfires together account for nearly 40 percent of countywide VOC emissions. Solvent use accounts for about 35 percent of Benton County VOC emissions, and mobile sources account for about 20 percent.

Fugitive dust from agricultural operations, construction activity, and roadways accounts for the majority of PM_{10} and $PM_{2.5}$ emissions in the county—about 88 and 62 percent, respectively. Wildfires are also an important source of PM_{10} and $PM_{2.5}$ emissions in the county, accounting for about 4 and 17 percent, respectively.

3.4 Water Resources

This section describes existing water resources within the proposed Horse Heaven Wind Farm (Project, or Proposed Action) Lease Boundary. Section 4.4 provides an analysis of the Project's potential impacts on water resources. The following water resources are addressed herein:

- Surface water and wetlands
- Runoff/absorption
- Floodplains
- Groundwater
- Public water supply

Regulatory Setting

The applicable federal, state, and county laws and regulations relevant to water resources are summarized in **Table 3.4-1**.

Table 3.4-1: Laws and Regulations for Water Resources

Regulation, Statute, Guideline[2]	Description
Federal	
Endangered Species Act of 1973	▪ Protects endangered and threatened species (including subspecies, varieties, and subpopulations) listed under the act and protects the ecosystems on which they rely.
Clean Water Act (CWA)	▪ Establishes regulations for discharging pollutants into waters of the United States and regulates water quality standards for surface water. Under the CWA, it is unlawful to release pollutants into navigable waters unless a permit is obtained. Relevant sections of the CWA that may apply to the Project include: o Section 404 of the CWA requires authorization for the discharge of dredge or fill material into waters of the United States, including some wetlands. o Section 401 of the CWA provides states and tribes the authority to issue water quality certifications, which are required for federal discharge permits into waters of the United States. o Section 402 of the CWA regulates point sources of discharge for pollutants to waters of the United States. A National Pollutant Discharge Elimination System permit is required for a facility to discharge a specified amount of pollutant into receiving waters under certain conditions. ▪ The Joint Aquatic Resource Permit Application (JARPA) is used by the Washington State Departments of Fish and Wildlife, Ecology, Natural Resources (for state-owned aquatic land), and Transportation; U.S. Environmental Protection Agency; U.S. Army Corps of Engineers; U.S. Coast Guard; and local governments (for shorelines). The JARPA provides a consolidated permit application process for federal, state, and local permits for construction and development activities near aquatic environments, including the local Shoreline Permit, State 401 Water Quality Certification, State Hydraulic Project Approval, State Aquatic Use Authorization, State Mooring Buoy Applications, Federal Section 404 and Section 10, Federal Private Aids to Navigation, and Federal 401 Water Quality Protection Agency.

[2] For facilities under its jurisdiction, EFSEC's governing statutes and rules pre-empt all aspects of the certification and regulation of energy facilities approved under RCW 80.50. As a result, the EFSEC review process subsumes all state, and local regulatory permits, requirements, and standards in the Site Certification Agreement.

Table 3.4-1: Laws and Regulations for Water Resources

Regulation, Statute, Guideline[2]	Description
State	
Revised Code of Washington (RCW) Chapter 90.48 Water Pollution Control	▪ The policy aims to maintain the highest standard for waters of the state to preserve public health and recreation and to protect wildlife and aquatic species. It prohibits the discharge of pollution to state waters. “Pollution” is defined as any physical, chemical, or biological property that could impact the ecological function. ▪ An Administrative Order under RCW 90.48 could be required to authorize discharges into waters of the state. Mitigation would be required. ▪ A Sand and Gravel General Permit would be required for potential stormwater discharges associated with rock crushing and concrete batch plants if required on site within the Project Lease Boundary.
RCW 77.55 Construction Projects in State Waters	▪ Under the Hydraulics Act, a Hydraulics Project Approval permit submitted to WDFW would be required when stormwater discharges related to a project would change natural flow or bed of state waters.
Washington Administrative Code (WAC) 463-62-060 Construction and Operation Standards for Energy Facilities – Water Quality	The Water Quality standards state: ▪ *Waste water discharges from projects under the council's jurisdiction shall meet the requirements of applicable state water quality standards, chapter 173-201A WAC, state groundwater quality standards, chapter 173-200 WAC, state sediment management standards, chapter 173-204A WAC, requirements of the Federal Water Pollution Control Act as amended (86 Stat 816,33 U.S.C. 1251, et seq.) and regulations promulgated thereunder.*
Washington Administrative Code (WAC) 463-60-332 Natural Environment – Habitat, vegetation, fish and wildlife	Application for site certification will include: ▪ An assessment of the existing habitats and their use, with a description of the habitats and species present on and adjacent to the site, relative cover, distribution, health, and vigor; the identification of any species of local importance, priority species, or endangered, threatened, or candidate species; and a discussion of management recommendations. ▪ Identification of the energy facility impacts, including temporary, permanent, direct, and indirect impacts on water quality, stream hydrology, in-stream flow, habitat, species, and their use of habitat. This shall include impacts due to the impacts on and changes to species communities adjacent to the project site, and an assessment of the potential for impacts from hazardous or toxic material.
State of Washington Priority Habitat and Species List (WDFW 2008)	▪ WDFW maintains a catalog of priority habitat and species that are a priority for conservation and management. Priority species are those that require protection due to population trends, sensitivity to disturbance, and habitat alteration, or are important to communities. Priority habitats are unique habits or features that support biodiversity and include freshwater wetlands.
WDFW Wind Power Guidelines (WDFW 2009)	▪ The purpose of the WDFW Wind Power Guidelines is to provide guidance for the development of wind energy facilities that avoid, minimize, and mitigate impacts on fish and wildlife habitat. WDFW provides review and recommendations to the permitting authority based on environmental expertise. Freshwater wetlands are a priority habitat.
WAC 173-201A Water Quality Standards for Surface Waters of the State of Washington	▪ Establishes surface water quality standards for State of Washington surface waters that are consistent with public health standards, recreational use, and the protection of fish and wildlife. Surface waters include lakes, rivers, streams, ponds, wetlands, inland waters, and saltwater.

Table 3.4-1: Laws and Regulations for Water Resources

Regulation, Statute, Guideline[2]	Description
WAC 170-303 Dangerous Waste Regulations	▪ The purposes of this regulation are to: *(1) Designate those solid wastes which are dangerous or extremely hazardous to the public health and environment;* *(2) Provide for surveillance and monitoring of dangerous and extremely hazardous wastes until they are detoxified, reclaimed, neutralized, or disposed of safely;* *(3) Provide the form and rules necessary to establish a system for manifesting, tracking, reporting, monitoring, recordkeeping, sampling, and labeling dangerous and extremely hazardous wastes;* *(4) Establish the siting, design, operation, closure, post-closure, financial, and monitoring requirements for dangerous and extremely hazardous waste transfer, treatment, storage, and disposal facilities;* *(5) Establish design, operation, and monitoring requirements for managing the state's extremely hazardous waste disposal facility;* *(6) Establish and administer a program for permitting dangerous and extremely hazardous waste management facilities; and* *(7) Encourage recycling, reuse, reclamation, and recovery to the maximum extent possible.* ▪ Dangerous waste would be stored a minimum of 0.25 miles from any surface water intake for domestic water. ▪ Fuels, oils, and any other hazardous substance would be stored within secondary containment. Secondary containment requires placing tanks or containers within an impervious structure that is capable of containing 110 percent of the volume contained in the largest tank within the containment structure.
Growth Management Act (GMA)	▪ Protection of Critical Aquifer Recharge Areas (CARA) is required under the GMA. CARAs are defined as “areas with a critical recharging effect on aquifers used for potable water.” CARAs are established to protect drinking water supply by preventing pollution from entering groundwater and maintaining access to groundwater supply. ▪ The GMA also identifies frequently flooded areas, geological hazardous areas, wetlands, and fish and wildlife habitat such as stream corridors as critical areas.
Local	
Benton County Code (BCC) – Chapter 15.02 General Provisions	▪ BCC 15.02 designates and classifies ecologically sensitive and hazardous areas and provides protection to these areas. ▪ Critical areas include the following: aquifer recharge areas, fish and wildlife conservation areas, frequently flooded areas, geologically hazardous areas, and wetlands.
BCC 15.04 Wetlands	▪ All areas that meet the definition of a wetland in the Federal Wetlands Delineation Manual (i.e., are inundated or saturated with surface or groundwater to support hydrophytic vegetation) are designated critical areas. ▪ Wetlands will be rated according to Ecology’s Washington State Wetland Rating System for Eastern Washington – Revised. Only activities related to conservation and enhancement are allowed in wetlands without submission of a critical area report. ▪ Wetlands are rated in accordance with Ecology’s Washington State Wetland Rating System for Eastern Washington (Hruby 2014), and establish the required buffers. Standard buffer widths for wetlands are as follows: ▪ 75 to 190 feet for Category I wetlands, depending on habitat points and the type of wetland.

Table 3.4-1: Laws and Regulations for Water Resources

Regulation, Statute, Guideline[2]	Description
	▪ 75 to 150 feet for Category II wetlands, depending on habitat points and type of wetland. ▪ 60 to 150 feet for Category III wetlands depending on habitat points. ▪ 40 feet for Category IV wetlands.
BCC 15.06 Aquifer Recharge Areas	▪ CARAs are areas that have a critical recharging effect on aquifers used for potable water. ▪ These include floodplains and floodways, areas of high ground water, areas with Hydrologic A soils, areas with designated wellhead protection, areas within 100 feet of all irrigation district main canals, and areas with alluvial soils.
BCC 15.08 Frequently Flooded Areas	▪ Frequently flooded areas are floodways and associated floodplains that are designated by the Federal Emergency Management Agency flood hazard classification or areas that occur within the 100-year floodplain.
BCC 15.14 Fish and Wildlife Habitat Conservation Areas	The following fish and wildlife habitat conservation areas are relevant to water resources: ▪ Areas where state or federal designated endangered, threatened, and sensitive species have a primary association. ▪ State-listed priority habitats and areas associated with state-listed priority species. ▪ Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters or water courses in Washington. ▪ Naturally occurring ponds, including their submerged aquatic beds, that provide fish or wildlife habitat. ▪ Lakes, ponds, streams, and rivers with introduced native fish populations. Development on conservation areas is prohibited unless federal or state permits or approvals are obtained. Riparian buffer requirements for rivers, lakes, ponds, and streams are: ▪ Type S (Shorelines of the State) standard buffer width: Type S waters are protected by the Benton County Shoreline Master Program, and the buffer width is dependent on the environmental designation and stream. Buffer widths for the Columbia and Yakima Rivers range from 0 feet for water-dependent activities (e.g., rural industrial) up to 200 feet in natural areas along the Columbia River and in the Hanford area. For other creeks, buffers are 100 feet for fish-bearing stream or 50 feet for non-fish-bearing, unless interlocal agreements are in place. ▪ Type F (fish) standard buffer width: 75 feet on parcels without streams with adjacent slopes of 10% or greater and 100 feet for parcels that have streams with adjacent slopes of 10% or greater. ▪ Type Np (non-fish perennial) and Ns (non-fish seasonal) standard buffer width: 50 feet on parcels without streams with adjacent slopes of 10% or greater and 100 feet for parcels that have streams with adjacent slopes of 10% or greater. A Hydraulic Project Approval would be required if work occurs within the ordinary high-water level.

Sources: WDFW 2008, 2009; Benton County 2018; Washington State Legislature 2023

Methodology

The spatial boundaries of the water resources affected environment are the same as the Project's Lease Boundary. The description of the affected environment provided in Section 3.4.1 is based on information available in the 2022 Application for Site Certification (ASC) from Horse Heaven Wind Farm, LLC (Applicant) and additional information provided by the Applicant through data requests for preparation of the Draft Environmental Impact Statement, as well as available government and publicly available literature.

3.4.1 Affected Environment

The Lease Boundary is located in Benton County, in eastern Washington. Benton County falls within the rain shadow of the Cascade Mountains, which creates dry conditions year-round. The average annual precipitation for the nearest community, the City of Kennewick, is approximately 7.7 inches (U.S. Climate Data 2021). The average annual snowfall is approximately 1 inch (U.S. Climate Data 2021). Summers are hot and mostly clear, while winters are very cold and partly cloudy (Horse Heaven Wind Farm, LLC 2022). The annual high temperature is 66 degrees Fahrenheit (°F), with annual low temperatures of 44°F (U.S. Climate Data 2021).

The Lease Boundary is located in an upland area dominated by agricultural activity with no irrigated crops (Appendix I, Horse Heaven Wind Farm, LLC 2022). Water resources in the area are limited. The Lease Boundary falls within the Rock–Glad watershed (Water Resource Inventory Area [WRIA] 31) and the Lower Yakima watershed (WRIA 37) (Ecology 2021). Watersheds and water resources are shown in **Figure 3.4-1.** The majority of the Lease Boundary drains toward the Columbia River, with the exception of a small area that drains north toward the Yakima River (Horse Heaven Wind Farm, LLC 2022).

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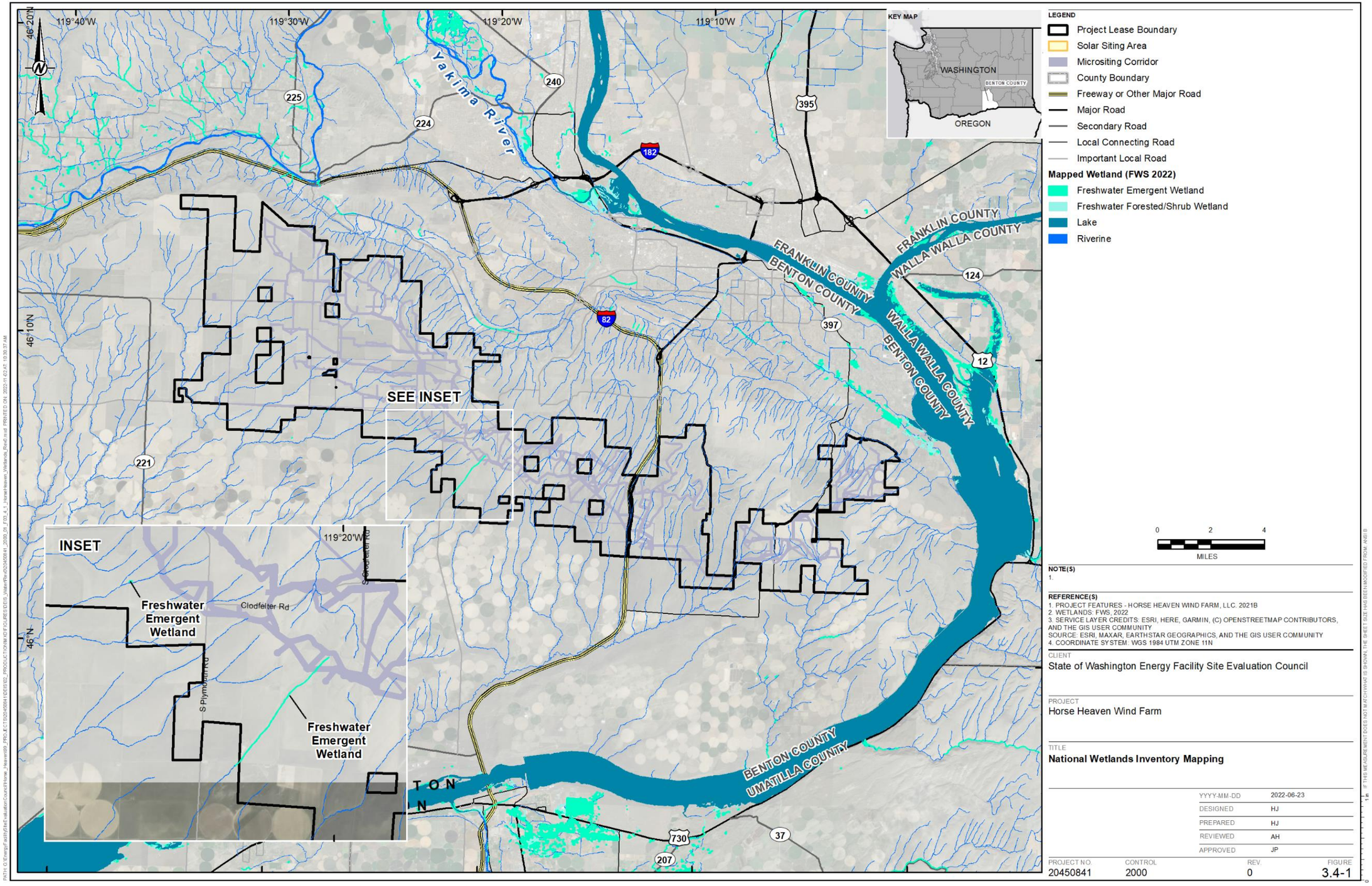

Figure 3.4-1: Watersheds and Water Resources in the Project Lease Boundary

3.4.1.1 Surface Water and Wetlands

The study area used by the Applicant for the background review of water resources comprised an area of approximately 21,680 acres and included the Wind Energy Micrositing Corridor and Solar Siting Areas. The background review completed by the Applicant is summarized below (Horse Heaven Wind Farm, LLC 2022).

- No hydric soils were identified in the Lease Boundary, based on Natural Resource Conservation Service data.
- Desktop review of the Washington Natural Heritage Program for high-quality wetlands did not identify any high-quality wetlands within the Lease Boundary.
- The National Hydrography Dataset and the Benton County Critical Area Ordinance fish and wildlife habitat conservation areas map identified 253 intermittent streams within the Lease Boundary (Ecology 2019; Benton County n.d.). No perennial streams are located within the Lease Boundary.
- No impaired or threatened waterbodies, as defined on the Washington State Department of Ecology 303(d) or 305(b) list, occur within the Lease Boundary (Ecology 2020).
- The Applicant notes that the U.S. Geological Survey Washington Current Water Condition data do not include any water quality conditions within the Lease Boundary. No water quality monitoring stations are located within the Lease Boundary; however, three are located within the downstream environment of the Lease Boundary (USGS 2022). One station is located on the Yakima River (Site 12510500 Yakima River at Kiona), and two are located on the Columbia River (Site 14019220 Columbia River at McNary Dam Lock and Site 14019240 Columbia River below McNary Dam) (USGS 2022).
  - Yearly Freshwater Quality Index (WQI) for the Yakima River at the Kiona site in 2019 was rated moderate concern with a score of 61.[3] Fecal coliform bacteria, oxygen levels, pH, and temperature were all rated as good, indicating that they meet expectations relative to the given conditions, while suspended solid, total persulfate nitrogen, total phosphorus, and turbidity were rated as moderate concern (Ecology 2020, 2022a).[1]
  - Yearly WQI for the Columbia River above the McNary Dam site is not available (Ecology 2022a).
  - Yearly WQI for the Columbia River below the McNary Dam site in 2019 was rated as good, with a score of 89. All yearly parameter scores were rated as good, including levels of fecal coliform bacteria, oxygen, pH, suspended solids, temperature, total persulfate nitrogen, total phosphorus, and turbidity (Ecology 2022a).
- The Lease Boundary includes areas identified as susceptible to erosion, landslides, and bluff failures.
- The Applicant reported no wetlands within the study area. Based on independent review, data available from the National Wetlands Inventory indicate that there are two freshwater emergent wetlands and/or palustrine features within the Lease Boundary, one of which crosses the Wind Energy Micrositing Corridor (USFWS 2022). The two freshwater emergent wetland and/or palustrine features within the Lease Boundary are shown on **Figure 3.4-1**.

[3] Ecology's Freshwater Quality Index (WQI) assigns a score of 1 to 100, with higher numbers indicating better water quality. A WQI of 80 and greater is given a rating of "good," indicating that the combined water quality conditions meet expectations relative to the given conditions and the water quality is of lowest concern. A score of 40 to 80 is rated "moderate concern." A score of 40 and below is rated "poor," indicating that the water quality does not meet expectations and these sites are of highest concern (Ecology 2020, 2022b).

The Applicant conducted wetland delineation surveys and surveys for non-wetland surface water in February, August, October, and November 2020 within the Lease Boundary. Additional surveys were completed in May 2021 within the Lease Boundary. In total, approximately 21,680 acres were surveyed for wetlands and other waters, with an emphasis on areas within the Wind Energy Micrositing Corridor and Solar Siting Areas (Appendix I, Horse Heaven Wind Farm, LLC 2022). Plant species names and associated wetland indicator status ratings are from the State of Washington 2016 Wetland Plant List (Lichvar et al. 2016). Findings from the field surveys are summarized below (Horse Heaven Wind Farm, LLC 2022; Appendix I, Horse Heaven Wind Farm, LLC 2022):

- No wetlands within the Wind Energy Micrositing Corridor and Solar Siting Areas were identified during field surveys.
- One wetland, surveyed in May 2021, was identified within the Lease Boundary approximately 240 feet west of the Wind Energy Micrositing Corridor in Badger Canyon and is approximately 0.03 acres in size (Wetland ID: E10). The location of the wetland relative to the Micrositing Corridor is displayed in **Figure 3.4-2**. The wetland is located downslope from the Micrositing Corridor. It is described as a depressional wetland, and further details from the U.S. States Army Corps of Engineers data sheet are provided below (Appendix I, Horse Heaven Wind Farm, LLC 2022):
  - The wetland is a depressional wetland located in a valley bottom downslope from the Micrositing Corridor. A spring with a well underneath a balsam poplar (*Populus balsamifera*) tree occurs within the site.
  - The wetland is located in the Ritzville Silt Loam soil map unit. Slope gradient on site is approximately 30 to 65 percent.
  - The soil profile on site is a sandy loam texture. Hydric soils and wetland hydrology indicators are present, including a hydrogen sulfide odor. Depth to bedrock is approximately 12 inches.
  - Hydrophytic vegetation is present on site. Dominant species include balsam poplar and common horsetail (*Equisetum arvense*), with some cover of Great Basin ryegrass (*Leymus cinereus*). All species are categorized as facultative species in the Arid West (USACE 2020). “Facultative” describes species that are found in wetland and non-wetland ecosystems (Lichvar et al. 2012).
  - Surface water was not present at the time of the survey, and the water table was not encountered; however, water saturation was present at a depth of 0 inches (i.e., surface).
  - The wetland was rated as a Category IV wetland based on function. Wetlands in Washington are provided a category rank based on their sensitivity to disturbance, rarity, functional value, and whether they are replaceable (Hruby 2014). Wetlands are ranked from Category I, being the most rare, sensitive, undisturbed, or irreplaceable to Category IV wetlands, which have the lowest functional value and are often heavily disturbed (Hruby 2014).
  - Disturbance was identified within the wetland area. The site was previously used as a water trough for cattle, and evidence of cattle grazing was observed at the site.
- Field surveys in the Wind Energy Micrositing Corridor and Solar Siting Areas mapped two intermittent streams and 31 ephemeral stream channels, all of which are considered waters of the state. The ephemeral and intermittent streams mapped by the Applicant are depicted in **Figure 3.4-3**. Stream acreage within the field survey study area was calculated to be 2.58 acres based on the average length and width of streams

(Appendix I, Horse Heaven Wind Farm, LLC 2022). Ephemeral streams flow only during, or immediately following, precipitation events, and stormwater is their main source of water (Nadeau 2015). An intermittent stream contains water for only a portion of the year—typically, seasonally during winter and spring when the channel is below the water table or when snowmelt provides sustained flow (Nadeau 2015).

The location of streams within the Lease Boundary based on field surveys (Appendix I, Horse Heaven Wind Farm, LLC 2022) was compared against the Project infrastructure to better quantify the crossing of streams for each Project component. The number of streams with which each Project component interacts is summarized in **Table 3.4-2,** based on the Applicant's field surveys (Horse Heaven Wind Farm, LLC 2022). Locations of ephemeral and intermittent streams based on the Applicant's surveys are provided in **Figure 3.4-3**.

Ephemeral and intermittent streams are important components of the broader watershed. While no streams within the Lease Boundary are fish bearing, streams within the Lease Boundary drain into the Columbia and Yakima Rivers, which provide important migratory and rearing fish habitat. Streams within the Lease Boundary provide inputs of sediment, nutrients, and organic matter to downstream environments and are hydraulically connected to the larger Yakima and Columbia Rivers (EPA 2008). The Columbia River contains fish, including species listed under the Endangered Species Act (ESA). The Columbia River provides critical habitat for salmonids, including ESA-listed Chinook salmon (*Oncorhynchus tshawytscha*), sockeye salmon (*O. nerka*), steelhead (*O. mykiss*), and bull trout (*Salvelinus confluentus*). The Yakima River provides habitat for ESA-listed steelhead and bull trout (Horse Heaven Wind Farm, LLC 2022).

Table 3.4-2: Interaction of Streams with the Proposed Project

Project Infrastructure	Location	Interactions with Ephemeral Streams	Interactions with Intermittent Streams
Wind Energy Micrositing Corridor	Turbine Option 1	31	2
	Turbine Option 2	31	2
Solar Arrays	East Solar Field	5	0
	County Well Solar Field	0	0
	Sellards Solar Field	2	0
BESS	BESS adjacent to the Bofer Canyon – HH-East Substation	0	0
	BESS adjacent to the Primary HH-West Step-up Substation	0	0
	BESS adjacent to the Alternate HH-West Step-Up Substation	0	0
Substations	HH-East Substation	0	0
	Primary HH-West Intermediate Substation	0	0
	Alternate HH-West Intermediate Substation	0	0
	Primary HH-West Step-Up Substation	0	0
	Alternate HH-West Step-Up Substation	0	0

BESS = battery energy storage system

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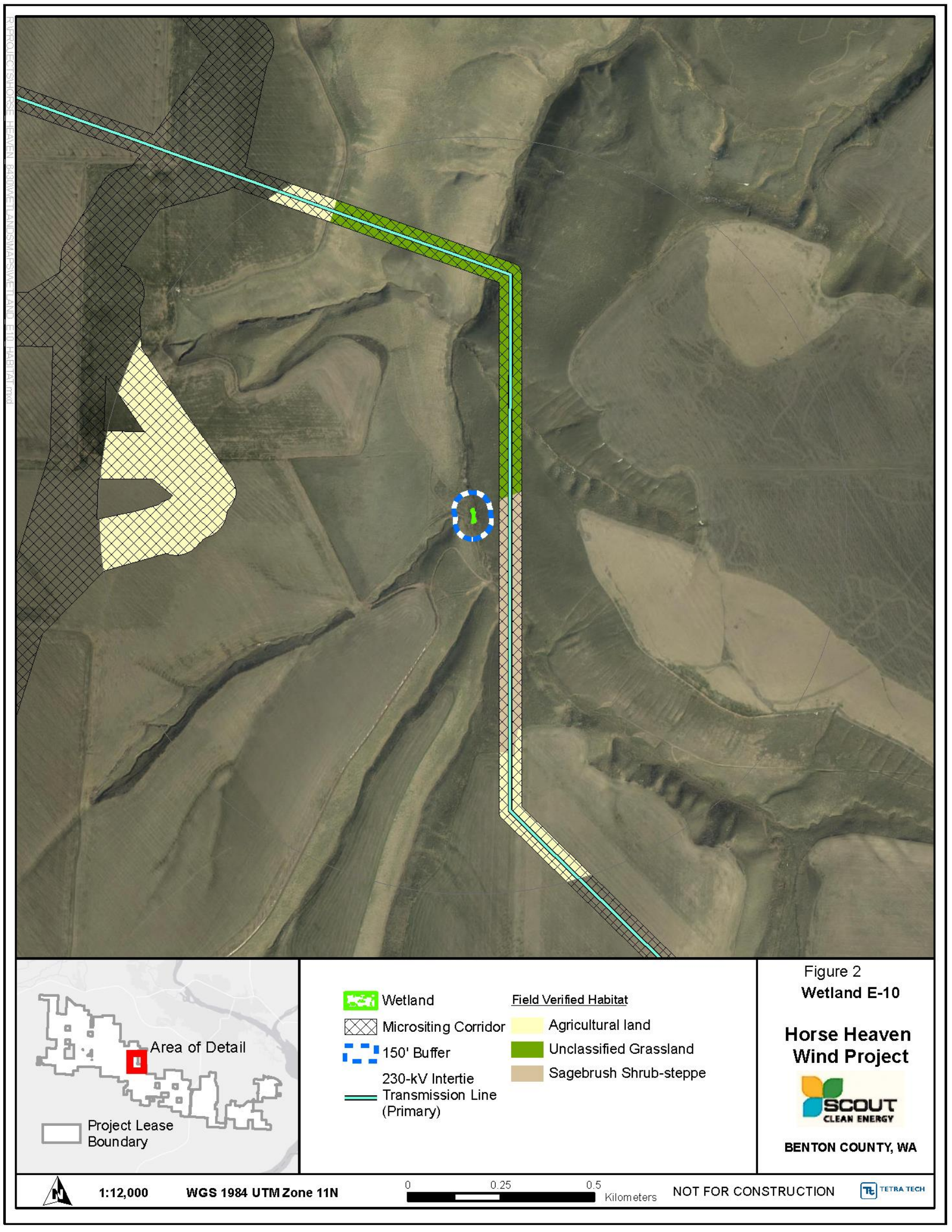
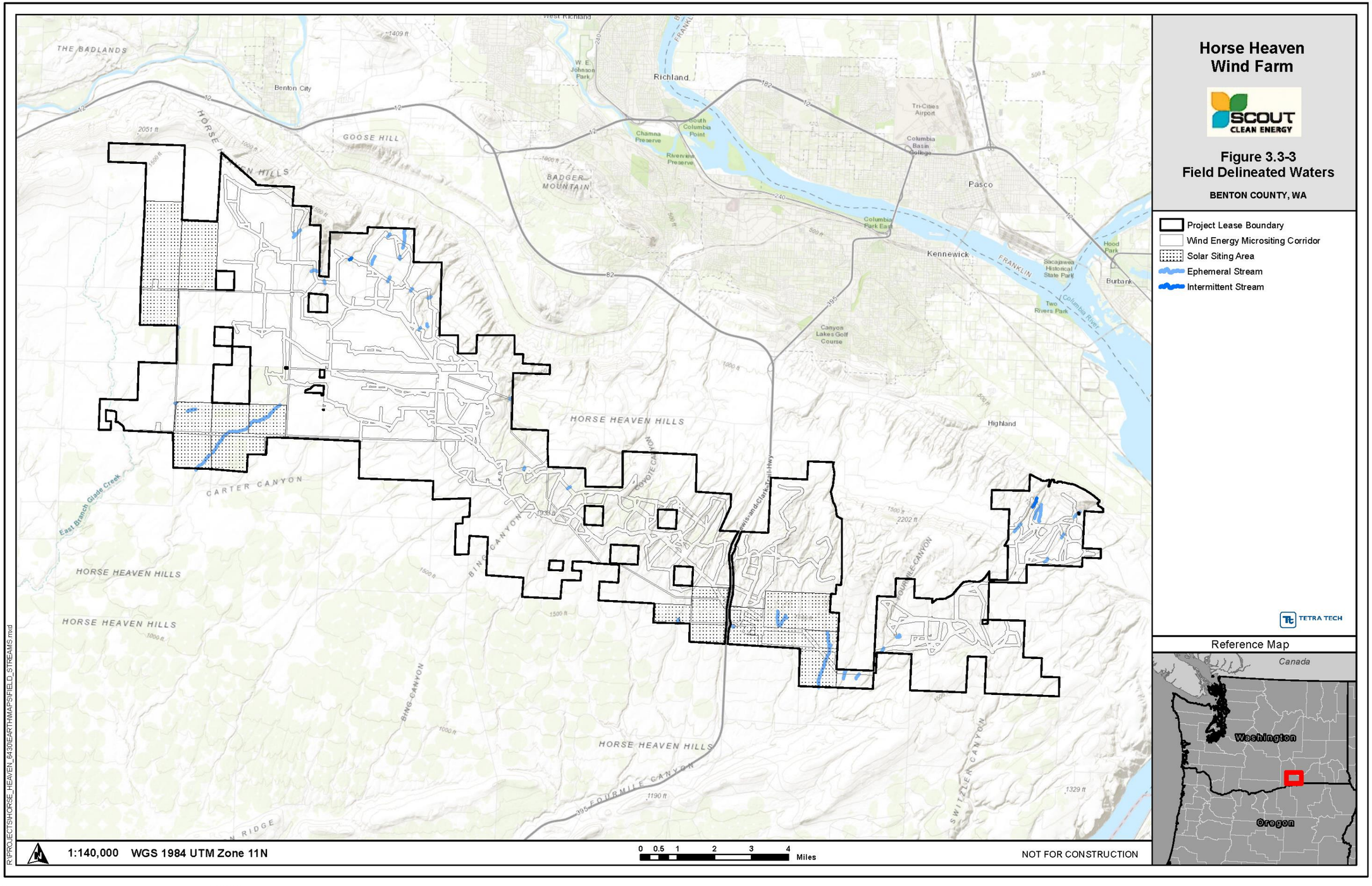


Source: Appendix I, Horse Heaven Wind Farm, LLC 2022

Figure 3.4-2: Wetland Delineated in the Lease Boundary during May 2020 Field Surveys by the Applicant



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.4-3: Waters Delineated in the Lease Boundary from Field Surveys

3.4.1.2 Runoff/Absorption

The Applicant provided the following information to characterize the existing runoff and absorption conditions within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022).

- Surface water is anticipated to infiltrate to the ground, based on the moderate permeability and depth of soils in the Lease Boundary.
- Ultimately, surface water drains to the Yakima River, located north of the Lease Boundary, and the Columbia River, located north, east, and south of the Lease Boundary.
- Construction of the Project is anticipated to increase the total area of impervious surfaces in the Lease Boundary from the gravel access roads; however, the increase is not expected to notably affect the runoff. Assuming that the developed/disturbed habitat category from the Applicant's habitat mapping is all impervious surfaces, there are approximately 836 acres of impervious surface in the Project Lease Boundary (1.2 percent) at present (Horse Heaven Wind Farm, LLC 2022).

3.4.1.3 Floodplains

The Applicant provided the following information to characterize the floodplains within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022).

- Approximately 149 acres of 100-year floodplains, also referred to as Frequently Flooded Areas in the Benton County Code, occur within the Lease Boundary. These areas are visible in **Figure 3.4-4** in the western section of the Lease Boundary and are associated with Critical Aquifer Recharge Areas (CARAs) as defined by Benton County Code Chapter 15.06 (Benton County 2018). CARAs are areas that act to recharge aquifers, which are used for potable water, as defined by Washington Administrative Code 365-190-100 (Washington State 2023).
- Approximately 160 acres of alluvial soils that are associated with CARAs also occur within the Lease Boundary. Alluvial soils are characterized by deposition by running water such as within a stream bed.
- No data on five-year and 50-year floodplains are available within the Lease Boundary.

Based on the present layout, approximately 0.8 acres of 100-year floodplain occur within areas identified as requiring temporary disturbance located within the Micrositing Corridor. The disturbance in the floodplain is associated with construction related to the 230-kilovolt transmission line.

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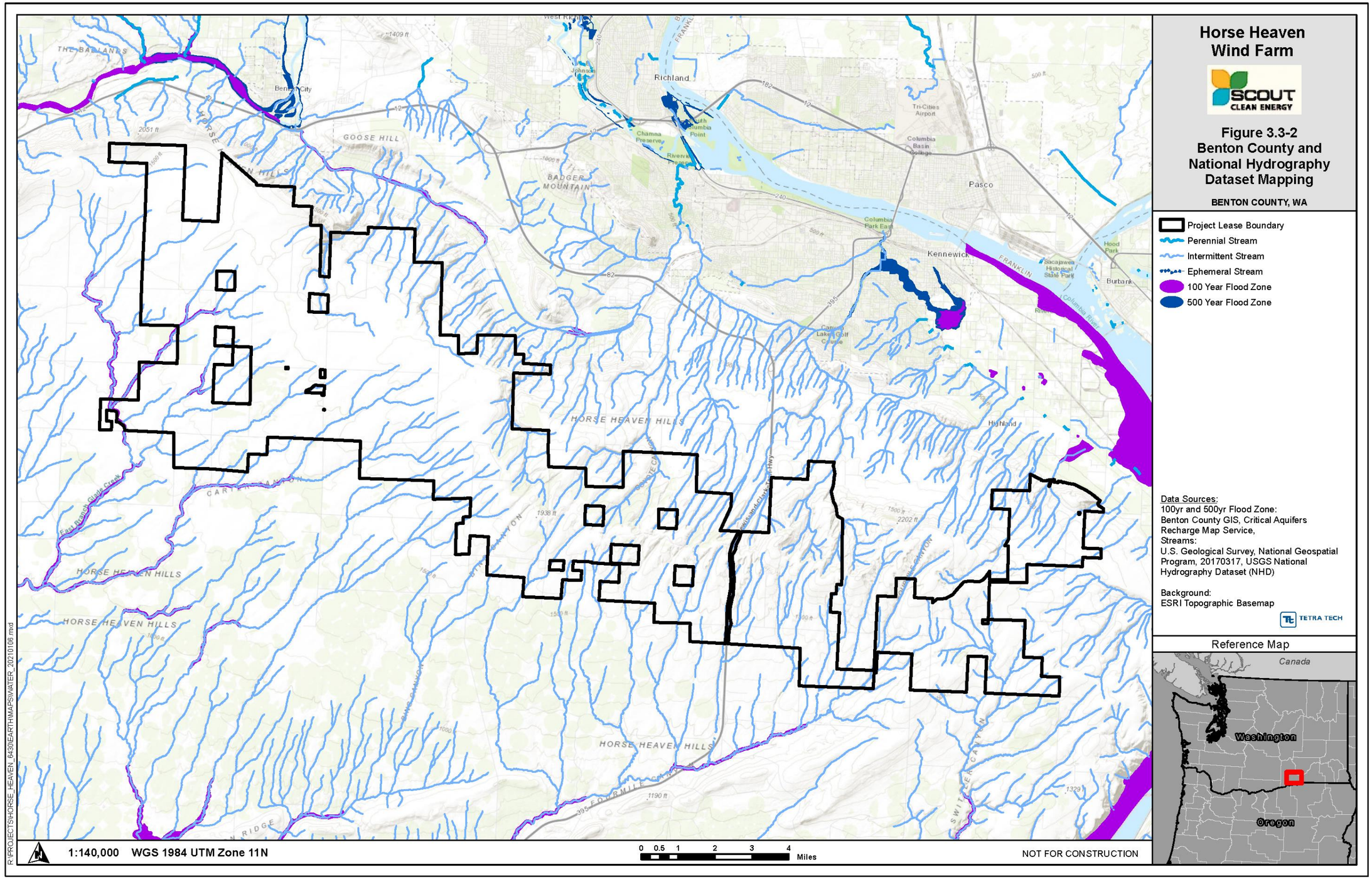

Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.4-4: 100-Year and 500-Year Floodplain in the Project Lease Boundary Vicinity

3.4.1.4 Groundwater

The Applicant provided the following information to characterize the existing groundwater regime within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022).

- Data available from the U.S. Geological Survey Washington Current Water Conditions identify the depth to groundwater as below normal, corresponding to approximately 184 feet below ground surface over most of the Lease Boundary. Data regarding groundwater movement, quality, and quantity within or near the Lease Boundary were not provided in the 2022 ASC for the Project (Horse Heaven Wind Farm, LLC 2022).
- Water well depths within the Lease Boundary range from approximately 55 to 1,506 feet below ground surface and are drilled primarily into the Columbia Plateau basaltic-rock aquifers. These water wells are used for domestic use, livestock, and irrigation (Horse Heaven Wind Farm, LLC 2022).
- As described in Section 3.4.1.3, there are approximately 160 acres of alluvial soils (i.e., soils deposited by surface water) associated with CARAs within the Lease Boundary (Benton County Code 15.06; Benton County 2018). CARAs are areas identified as important for critical recharge of aquifers (Benton County 2018).
- As described in Section 3.2, boreholes were evaluated for the presence and level of any groundwater during and shortly after drilling operations associated with the Applicant's geotechnical investigations. The boreholes did not display a static groundwater level (Horse Heaven Wind Farm, LLC 2022). Groundwater is not anticipated to impact Project design or construction. During the detailed geotechnical investigation, piezometers may be installed for more accurate site groundwater levels (Appendix B, Horse Heaven Wind Farm, LLC 2022).
- Water used by the Project would be sourced from either local off-site public facilities with water sources being the Columbia or Snake River, local private irrigators with collector wells on the banks of the Columbia River, or wells that are fed from regional aquifers (Horse Heaven Wind Farm, LLC 2022).

3.4.1.5 Public Water Supply

The Applicant provided the following information to characterize public water supply sources (Horse Heaven Wind Farm, LLC 2022).[4]

- No public water supply wells are located within the Lease Boundary.
- Water for construction and operation of the Project would be sourced from suppliers located near the Lease Boundary and would likely be sourced from local public utilities. This may include a local off-site public utility with water sources being the Columbia or Snake River, local private irrigators with collector wells on the banks of the Columbia River, or wells that are fed from regional aquifers.
- Appendix J of the 2022 ASC includes a letter from the Port of Walla Walla indicating an Availability of Water for Hire.
- Construction activities are estimated to require 220,000 gallons of water per day, for a total water use of 120 million gallons. This includes the estimated 12.6 million gallons of water that would be required for the on-site concrete batch plant operation. An on-site concrete batch plant is proposed to be located in the east laydown

[4] Characteristics of public water supply for the study area are further discussed in Section 3.15.1, Public Services and Utilities.

area during Phase 1 of construction (approximately four months) and would be located in the west laydown area during Phase 2 of construction (approximately four months).

- Water would be required during operations to wash solar modules in the Solar Siting Areas. Solar modules would be washed once per year during operations and would require an estimated 2,025,000 gallons of water annually should all three solar siting areas be constructed. No additives would be used to wash solar panels. In addition, no more than 5,000 gallons of water a day are estimated to be needed for consumption and domestic use for kitchen and washroom facilities at the operation and maintenance buildings.
- Water is proposed to be trucked to the site from a local supplier and stored in a water storage tank for both construction and operation.

3.5 Vegetation

This section describes the vegetation and supporting habitat in the proposed Horse Heaven Wind Farm (Project, or Proposed Action) vicinity. Section 4.5 presents an analysis of the Project's potential impacts on vegetation. The vegetation analyzed in this section is restricted to upland vegetation. Wetlands are covered under Section 3.4.

Regulatory Setting

Laws and regulations for determining potential impacts on vegetation are summarized in **Table 3.5-1**.

Table 3.5-1: Laws and Regulations for Vegetation Resources

Regulation, Statute, Guideline[5]	Description
Federal	
Endangered Species Act of 1973	Protects endangered and threatened species (including subspecies, varieties, and subpopulations) listed under the act and protects the ecosystems they rely on.
State	
Revised Code of Washington 16-750 Noxious Weeds – Control Boards	The purpose of this code is to minimize the economic loss and adverse effects of noxious weeds on Washington's agriculture, natural areas, and human resources. This code grants jurisdiction, powers, and duties to the county's noxious weed control boards.
Washington State Code 16-750 State Noxious Weed List and Schedule of Monetary Penalties	The purpose of this code is to identify the state's noxious weed list of plants considered highly destructive, competitive, or difficult to control. This code also provides a ranking of noxious weeds as Class A, Class B, or Class C, which indicates the requirements for control.
State of Washington Priority Habitat and Species List (WDFW 2008)	Priority Habitats are unique habitats or features that support biodiversity. Washington Department of Fish and Wildlife (WDFW) maintains a catalog of Priority Habitats and species that are a priority for conservation and management. Priority Species require protection due to population trends, sensitivity to disturbance and habitat alteration, or importance to communities.
WDFW Wind Power Guidelines (WDFW 2009)	The purpose of the WDFW Wind Power Guidelines is to provide guidance for the development of wind energy facilities that avoid, minimize, and mitigate impacts on fish and wildlife habitats. WDFW provides reviews and recommendations to the permitting authority based on environmental expertise.
Local	
Benton County Code Title 15 Chapter 15.04 Wetlands	All areas that meet the definition of a wetland in the Federal Wetlands Delineation Manual (i.e., are inundated or saturated with surface or groundwater to support hydrophilic vegetation) are designated critical areas. Wetlands are rated according to The Washington State Department of Ecology's Washington State Wetland Rating System for Eastern Washington – Revised. Activities allowed in wetlands are conservation and enhancement of the wetland.
Benton County Code – Title 15 Chapter 15.14 Fish and Wildlife Habitat Conservation Areas	Fish and wildlife habitat conservation areas relevant to vegetation resources include: ▪ Areas where state or federal designated endangered, threatened, and sensitive species have a primary association ▪ State Priority Habitats and areas associated with state Priority Habitats ▪ Habitats and species of local importance, which includes shrub-steppe habitat in Benton County. Development on conservation areas is prohibited unless federal or state permits or approval is obtained.

Methodology

The affected environment described in this section has been categorized into four spatial boundaries to assess vegetation. These areas were independently calculated from spatial data provided by Horse Heaven Wind Farm,

[5] For facilities under its jurisdiction, EFSEC's governing statutes and rules preempt all aspects of the certification and regulation of energy facilities approved under RCW 80.50. As a result, the EFSEC review process subsumes all state, and local regulatory permits, requirements, and standards in the Site Certification Agreement.

LLC (Applicant) (Horse Heaven Wind Farm, LLC 2021a). To enable an assessment of each Project component independent of the others, the spatial data were used as the 2022 Application for Site Certification (ASC) did not provide data summaries to a sufficient degree of detail. The four areas used in this analysis are:

- The Lease Boundary, which encompasses approximately 72,428 acres on Horse Heaven Hills.
- The Wind Energy Micrositing Corridor, which encompasses approximately 11,845 acres of predominantly linear features, including the turbines, support infrastructure (i.e., roads, crane paths, laydown yards, operations and maintenance facilities, meteorological towers), collector lines (overhead and underground), transmission lines (230 kilovolt [kV] and 500 kV), the Primary HH-West Intermediate Substation, the Alternate HH-West Intermediate Substation, the Primary HH-West Step-up Substation, and the battery energy storage system (BESS) adjacent to the Alternate HH-West Step-up Substation. The Micrositing Corridor is located mostly within the Lease Boundary, except for three locations where infrastructure crosses Interstate 82.
- Solar Siting Areas, which encompass approximately 10,755 acres. Where information provided by the Applicant allows, the Solar Siting Areas are further divided into the following areas:
  - East Solar Field, which encompasses approximately 4,389 acres, including the HH-East Substation and the BESS adjacent to the Bofer Canyon – HH-East Substation
  - County Well Solar Field, which encompasses approximately 3,343 acres, including the Alternate HH-West Step-up Substation and the BESS adjacent to the Alternate HH-West Step-up Substation
  - Sellards Solar Field, which encompasses approximately 3,023 acres[6]
- The Comprehensive Project, which encompasses approximately 17,090 acres, includes all components associated with the Wind Energy Micrositing Corridor and all Solar Siting Areas. As portions of the Wind Energy Micrositing Corridor overlap with some of the Solar Siting Areas, the area of the Comprehensive Project is less than the sum of individual components.
- The Vegetation Area of Analysis (VAA), which encompasses approximately 202,289 acres and includes the Lease Boundary plus an additional 2-mile buffer.

Some of the area summaries from the independent calculation differ from the area summaries provided in the 2022 ASC due to area overlap. For example, portions of the Micrositing Corridor occur within the Solar Siting Areas and were not accounted for under the Micrositing Corridor in the 2022 ASC. However, to assess this as an individual component all areas associated with it were included.

The VAA is the same area used for analysis of wildlife and habitat in Section 3.6. A 2-mile buffer was selected because this was the distance used for aerial raptor surveys by the Applicant during stick nest surveys (Appendix K, Horse Heaven Wind Farm, LLC 2022), and vegetation is closely associated with wildlife and wildlife use. Where data are available from the Applicant, analyses are provided for each Project component (i.e., Wind Energy Micrositing Corridor, Solar Siting Areas, substations, and BESS). Where data by Project component are unavailable from the Applicant, analyses are summarized for all Project components.

[6] Unlike the East Solar Field and County Well Solar Field, the substation is located outside what is shown as the Solar Siting Area for the Sellards Solar Field.

Field studies were not conducted for this Environmental Impact Statement (EIS); rather, this analysis relies on information provided in the 2022 ASC and associated appendices (Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022) and from government and publicly available sources. Habitat summaries provided in Section 3.5.2 for the Lease Boundary, Micrositing Corridor, and Solar Siting Areas were calculated independently, using the spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021a).

Vegetation field studies were completed by the Applicant in 2018, 2020, and 2021. Coarse-scale reconnaissance and mapping of land cover were completed in 2018 for parts of the Project Lease Boundary that were accessible by public roads, following which changes were made to the proposed Project. Surveys in 2020 included a 200-foot buffer around 44 turbine locations and portions of the Micrositing Corridor. Surveys completed in June 2021 focused on characterizing habitat in the unsurveyed portions of the Micrositing Corridors, turbine locations, and Solar Siting Areas not surveyed in 2020 (Horse Heaven Wind Farm, LLC 2022).

3.5.1 Affected Environment

The VAA is in the Columbia Plateau Ecoregion, which is an arid environment dominated by grassland-steppe and shrub-steppe (Clarke and Bryce 1997). The dominant vegetation association in the VAA was historically big sagebrush (*Artemisia tridentata*) and bluebunch wheatgrass (*Pseudoroegneria spicata*) (Franklin and Dyrness 1988). However, much of the land and associated vegetation has been altered by anthropogenic activities, predominantly agriculture and grazing in the Horse Heaven Hills area.

The VAA is located in Benton County, in eastern Washington. Benton County falls within the rain shadow of the Cascade Mountains, which creates dry conditions year-round. Elevation within the Lease Boundary ranges from 604 to 2,051 feet above mean sea level (Horse Heaven Wind Farm, LLC 2022). The average annual precipitation for the nearest city, the city of Kennewick, is approximately 7.7 inches (U.S. Climate Data 2021). Average annual snowfall is approximately 1 inch (U.S. Climate Data 2021). Summers are hot and mostly clear, while winters are cold and partly cloudy (Horse Heaven Wind Farm, LLC 2022). July is the warmest month on average with an average monthly high of 90 degrees Fahrenheit (°F), and monthly low of 62 °F. December is the coldest month on average with an average monthly high of 40 °F and monthly low of 29 °F (U.S. Climate Data 2023).

3.5.2 Habitat

The following sections describe the existing habitat within the Lease Boundary and VAA.

3.5.2.1 Habitat Mapping in the Lease Boundary

Habitat mapping is available from the Applicant for the area within the Lease Boundary and was developed using both aerial imagery and field survey data. The Applicant adapted habitat types and subtypes to describe the existing environment from descriptions in the Washington Department of Fish and Wildlife's (WDFW) Wind Power Guidelines (WDFW 2009) and Johnson and O'Neil (2001), except the description for rabbitbrush shrubland and non-native grassland, which have been described by the Applicant in the 2022 ASC. The Applicant completed field surveys of the Wind Energy Micrositing Corridor and Solar Siting Areas in 2020 and 2021 to characterize the existing conditions. All parts of the Micrositing Corridor and Solar Siting Areas were field surveyed, except for 604 acres that were not accessible within two parcels of land in the Sellards Solar Field (Appendix K, Horse Heaven Wind Farm, LLC 2022). Photos of representative habitat subtypes in the Lease Boundary are provided in **Appendix 3.5-1**. Descriptions of each habitat type and subtype occurring in the Lease Boundary are provided

below. Descriptions are based on information provided in the 2022 ASC and associated appendices (Horse Heaven Wind Farm 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022).

- **Agricultural land (photo 1, Appendix 3.5-1)** is defined as areas used for agricultural purposes. Within the Lease Boundary, this is primarily active wheat fields and fallow wheat fields.
- **Developed/disturbed areas (photo 2, Appendix 3.5-1)** are areas of anthropogenic development such as roads, buildings, and structures associated with human development (e.g., radio towers), which are primarily unvegetated or dominated by weedy species.
- **Grasslands** are graminoid and forb-dominated ecosystems. Grassland subtypes in the Lease Boundary are described below based on the information provided in the 2022 ASC and the 2021 Botany and Habitat Survey Report for Horse Heaven Wind Farm (Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022).
  - **Eastside (interior) grassland (photo 3, Appendix 3.5-1)** is dominated by native perennial grasses: bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg's bluegrass (*Poa secunda*), and Great Basin wildrye (*Leymus cinereus*). The forb layer is diverse and includes species such as Carey's balsamroot (*Balsamorhiza careyana*), fiddleneck (*Amsinckia* sp.), and lupine (*Lupinus* sp.). The shrub layer is typically less than 5 percent of total vegetation cover with green rabbitbrush (*Chrysothamnus viscidiflorus*) and rubber rabbitbrush (*Ericameria nauseosa*). The areas identified by the Applicant as Eastside (interior) grassland are considered Eastside Steppe Priority Habitat in Washington State (WDFW 2008).
  - **Non-native grassland (photo 4, Appendix 3.5-1)** includes areas of formerly planted and native grassland that are now dominated by non-native grass and forb species and have transitioned into non-native grassland. Within the Lease Boundary, non-native grasslands are areas dominated by cereal rye (*Secale cereale*), cheatgrass (*Bromus tectorum*), prickly lettuce (*Lactuca serriola*), tall tumblemustard (*Sisymbrium altissimum*), and yellow salsify (*Tragopogon dubius*). Native plants may be present but represent a small percentage of the overall vegetation cover.
  - **Planted grasslands (photo 5, Appendix 3.5-1)** are lands that have been planted with non-native grasses, native grasses, and native shrubs. These lands may or may not be enrolled in the U.S. Department of Agriculture Conservation Reserve Program. Within the Lease Boundary, planted grasslands are typically characterized by perennial crested wheatgrass (*Agropyron cristatum*), bluebunch wheatgrass, big bluegrass (*Poa secunda* ssp. *juncifolia*), rabbitbrush, and low forb diversity.
  - **Unclassified grasslands** are areas identified as herbaceous (forb or graminoid) land cover, as classified by the National Land Cover Database (NLCD), that were not further classified into one of the above grassland subtypes. This classification is used for the portion of the Lease Boundary that lies outside the Wind Energy Micrositing Corridor and Solar Siting Areas, where field data are limited.
- **Shrublands** are ecosystems that have a conspicuous shrub layer. Shrubland subtypes within the Lease Boundary are described below.
  - **Dwarf shrub-steppe (photo 6, Appendix 3.5-1)** is a shrubland habitat located on lithosol soil. Dwarf shrub-steppe is dominated by the native dwarf shrub rock buckwheat (*Eriogonum sphaerocephalum*) and the native perennial grasses bluebunch wheatgrass and Sandberg's bluegrass. Non-native plants

such as cheatgrass and cereal rye may be present. Dwarf shrub-steppe is part of the Shrub-steppe Priority Habitat in Washington State (WDFW 2008).

- **Rabbitbrush shrubland (photo 7, Appendix 3.5-1)** is characterized by areas dominated by rubber rabbitbrush, which readily colonizes post-fire or post-agricultural development. Within the Lease Boundary, rabbitbrush shrubland occurs in former agriculture land areas that have been planted with native grasses, native shrubs, and/or non-native grasses. Rabbitbrush shrubland is dominated by rabbitbrush, mainly green rabbitbrush and rubber rabbitbrush, with various native and non-native grasses and forbs. These areas may or may not be enrolled in the Conservation Reserve Program.
- **Sagebrush shrub-steppe (photo 8, Appendix 3.5-1)** is dominated by the native shrub big sagebrush (*Artemisia tridentata*), often with spineless horsebrush (*Tetradymia canescens*), rubber rabbitbrush, and green rabbitbrush. Sagebrush shrub-steppe ecosystems within the Lease Boundary typically have greater than 50 percent cover of sagebrush, but cover can range from 10 to 80 percent. Sagebrush shrub-steppe is part of the Shrub-steppe Priority Habitat in Washington State (WDFW 2008).
- **Unclassified shrubland** includes areas mapped as shrub or scrub by the NLCD and areas mapped as shrub-steppe during the 2018 surveys that could not be further differentiated into subtypes. This classification is only used for the area within the Lease Boundary outside the Wind Energy Micrositing Corridor and Solar Siting Areas, where field data are limited.

A summary of areas classified as each habitat type and subtype within the Lease Boundary and within areas of the proposed Project components is provided in **Table 3.5-2**. The location of habitat types identified by the Applicant is provided in **Figure 3.5-1**. The habitat types within each Solar Siting Area are further broken out in **Table 3.5-3**. For each habitat type, the percentage of habitat occurring in areas of the proposed Project components was compared to the total area available in the Lease Boundary (**Table 3.5-2**). All the Eastside (interior) grassland (Eastside Steppe), 89.7 percent of the dwarf shrub-steppe, and 17.9 percent of the sagebrush shrub-steppe habitats within the Lease Boundary occur in the areas of the proposed Project components.

Table 3.5-2: Habitat Types and Subtypes within the Lease Boundary and Project Component Areas[a]

Habitat Type/Subtype	Lease Boundary (acres)	Wind Energy Micrositing Corridor (acres)	Solar Siting Areas (acres)	Substation Areas (acres)	BESS Areas (acres)	Compre-hensive Project (acres)[d]	Percentage of Habitat Type Available known to occur in the Lease Boundary Located within the Comprehensive Project
Agriculture land	53,450.1	9,219.3	8,409.0	36.6	18.1	17,089.5	31.9%
Developed/disturbed	835.7	206.5	128.8	0	0	225.8	27.0%
Grassland							
Eastside (interior) grassland (Eastside Steppe)[b]	173.5	56.8	153.3	0	0	173.5	100%
Non-native grassland	1,635.5	656.5	451.4	1.6	0	1,099.6	67.2%
Planted grassland	4,338.3	934.1	519.4	0	0	1,402.4	32.3%
Unclassified grassland[c]	6,125.2	0	0	0	0	0	0%
Shrubland							
Dwarf shrub-steppe[b]	23.2	20.8	0	0	0	20.8	89.7%
Rabbitbrush shrubland	3,037.7	560.3	1,024.9	0	0	1,481.2	48.8%
Sagebrush shrub-steppe[b]	1,372.0	190.1	67.9	0	0	245.3	17.9%
Unclassified shrubland[c]	1,436.6	0	<0.1	0	0	<0.1	<0.01%
Total	**72,427.9**	**11,844.5**	**10,754.7**	**38.2**	**18.1**	**21,738.1**	

Sources: WDFW 2008; Horse Heaven Wind Farm, LLC 2021b; Appendix K, Horse Heaven Wind Farm, LLC 2022

Notes: The sum of each column may not add to the total due to rounding.

[a] Calculations were completed using the spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2022). Areas of overlap may occur between Project components (e.g., the Wind Energy Micrositing Corridor may extend into the Solar Siting Area).

[b] Priority Habitats in the State of Washington (WDFW 2008).

[c] Unclassified grassland and unclassified shrubland habitat subtypes include the areas mapped during surveys conducted in 2018 or using National Land Cover Database data that were not further classified into subtypes (e.g., planted grassland, sagebrush shrub-steppe) during the 2020 and 2021 field surveys or 2020 desktop analysis.

[d] Includes all Project components but accounts for areas of overlap.

BESS = battery energy storage system

Table 3.5-3: Habitat Types and Subtypes in Each of the Solar Siting Areas[a]

Habitat Type	East Solar Field (acres)	County Well Solar Field (acres)	Sellards Solar Field (acres)
Agriculture land	2,471.6	3,223.7	2,713.6
Developed/disturbed	53.8	34.8	40.2
Grassland			
Eastside (Interior) Grassland (Eastside steppe)[b]	153.3	0	0
Non-native grassland	398.5	4.5	48.4
Planted grassland	236.1	79.9	203.3
Unclassified grassland[c]	0	0	0
Shrubland			
Dwarf shrub-steppe[b]	0	0	0
Rabbitbrush shrubland	1,024.9	0	0
Sagebrush shrub-steppe[b]	50.9	0	17.0
Unclassified shrubland[c]	<0.1	0	0
Total	**4,389.2**	**3,342.9**	**3,022.6**

Sources: WDFW 2008; Horse Heaven Wind Farm, LLC 2021b

Notes:

[a] Calculations were completed using the spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021a). Areas of overlap may occur between Project components (e.g., the Wind Energy Micrositing Corridor may extend into the Solar Siting Area).

[c] Priority Habitats in the State of Washington (WDFW 2008).

[b] Unclassified grassland and unclassified shrubland habitat subtypes include those areas mapped during surveys conducted in 2018 or using NLCD data that were not further classified into subtypes (e.g., planted grassland, sagebrush shrub-steppe) during the 2020 and 2021 field surveys or 2020 desktop analysis.

NLCD = National Land Cover Database

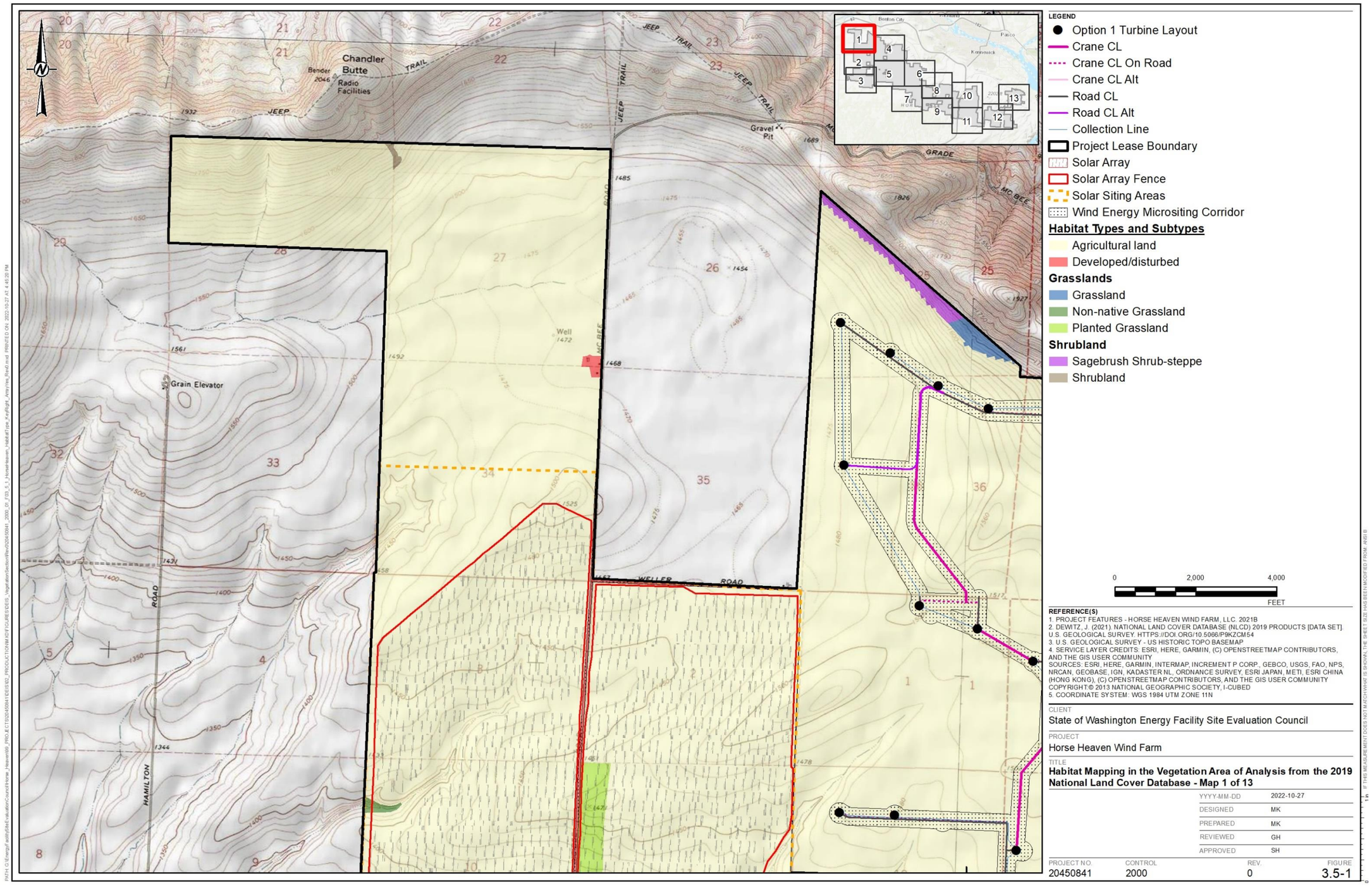

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 1 of 13

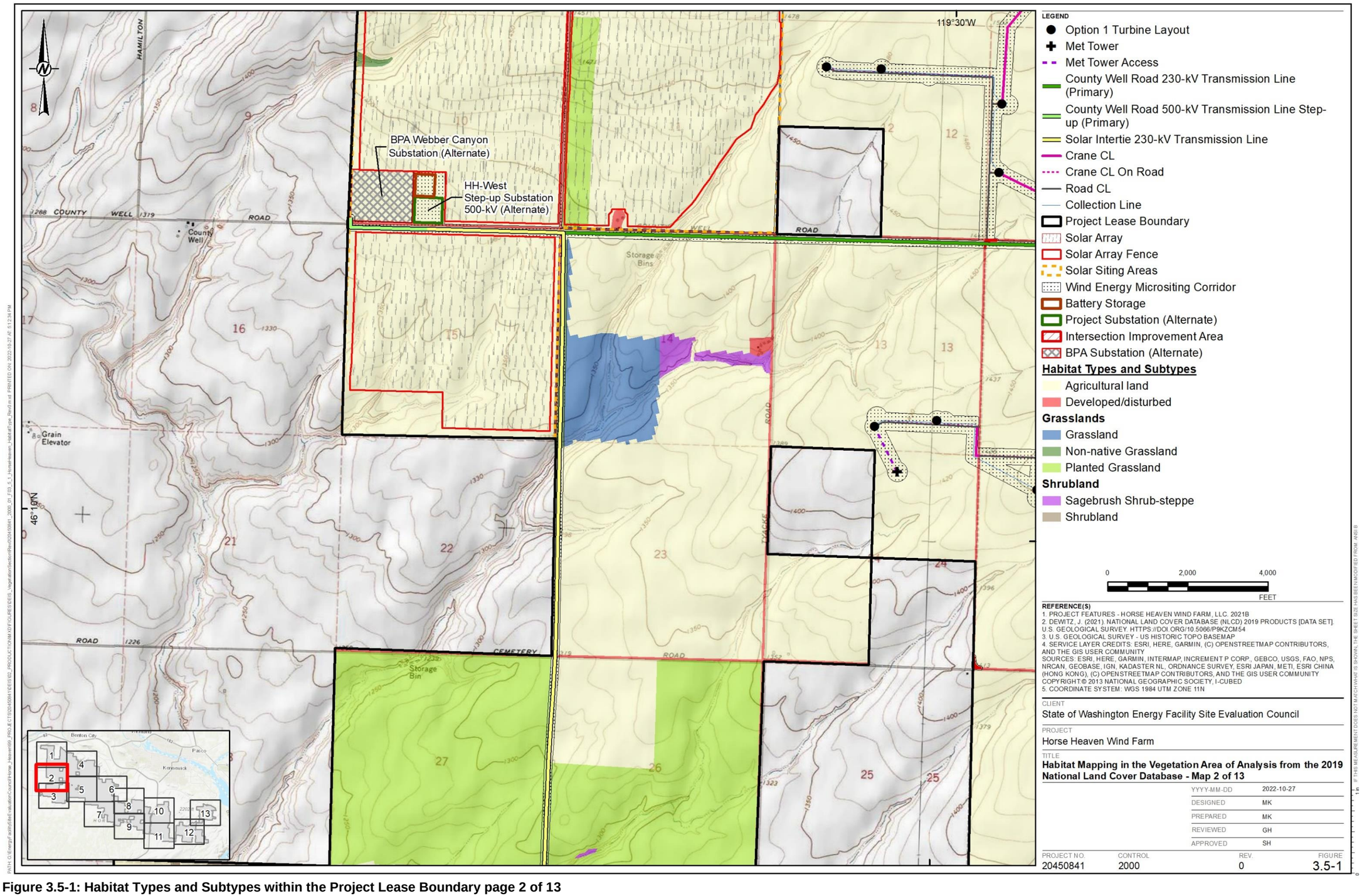

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 2 of 13

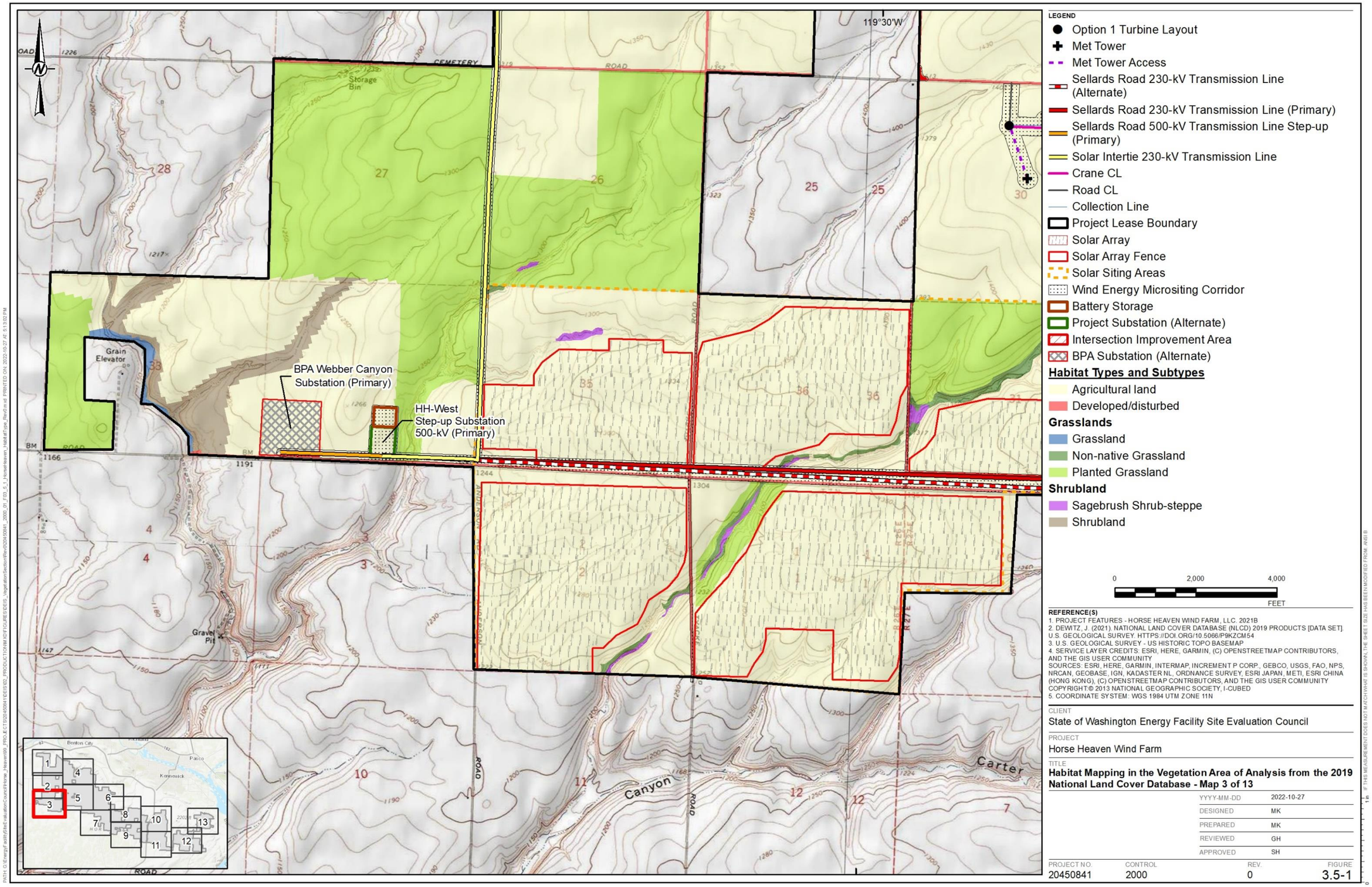

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 3 of 13

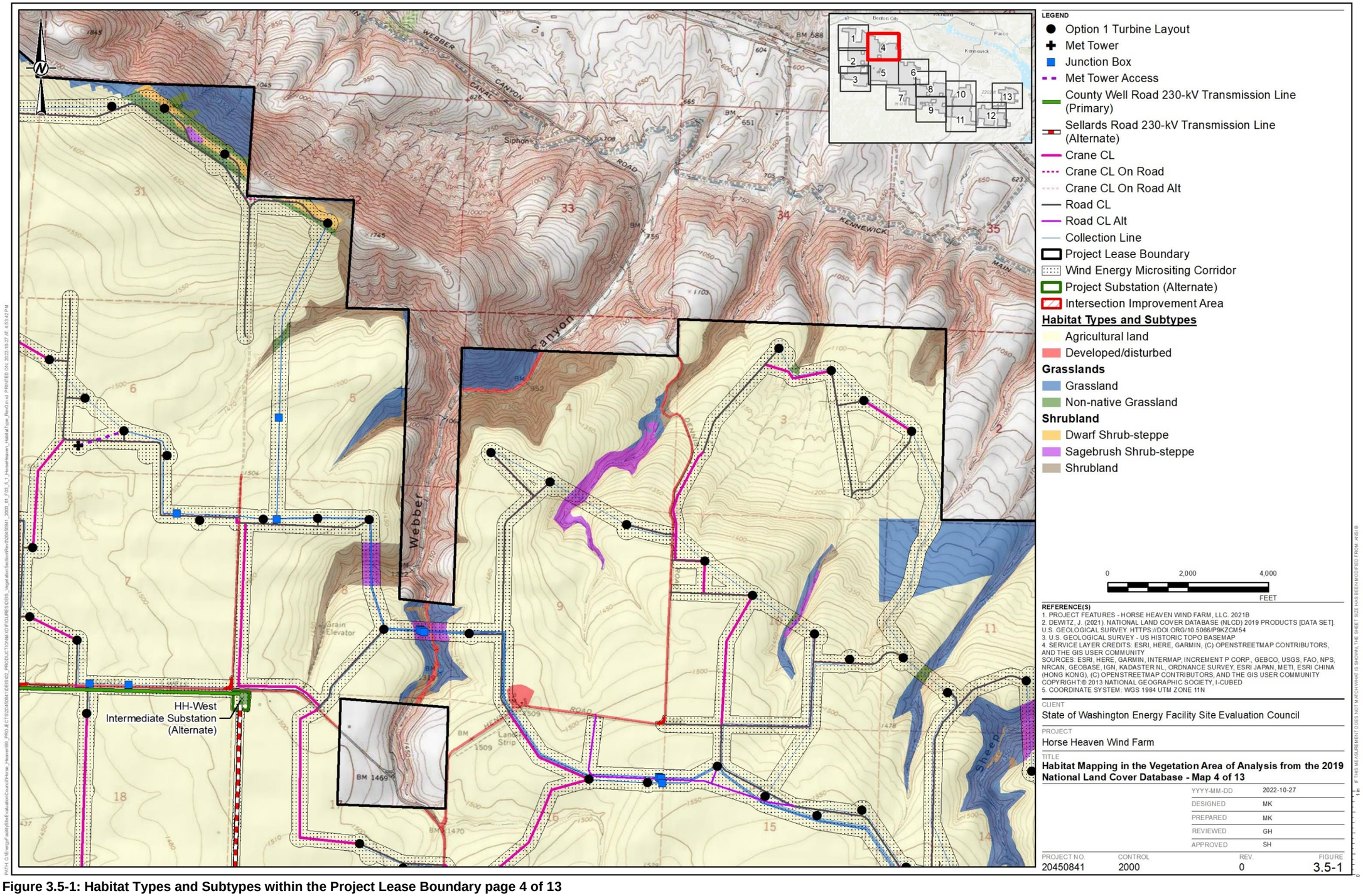

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 4 of 13

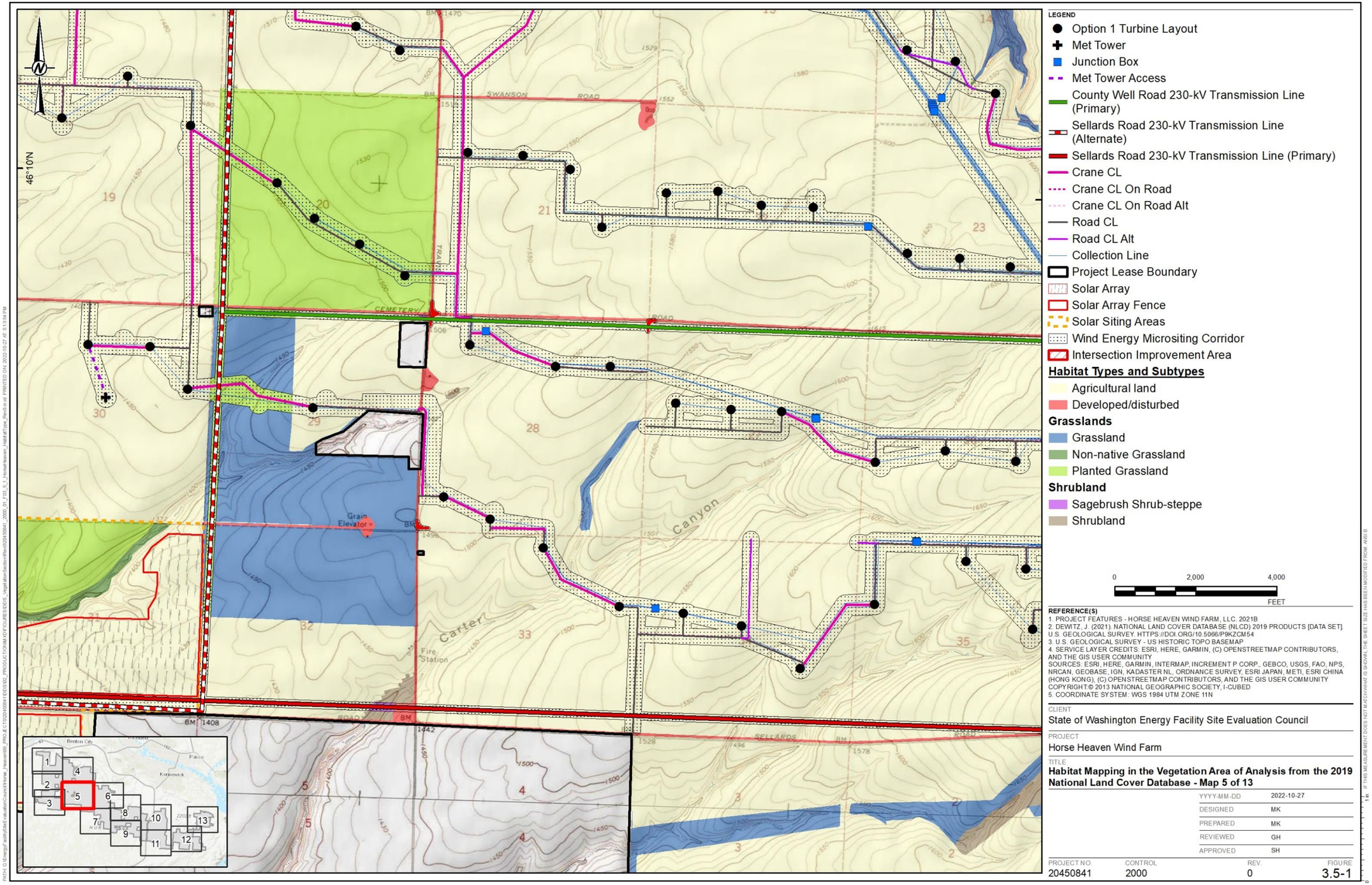

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 5 of 13

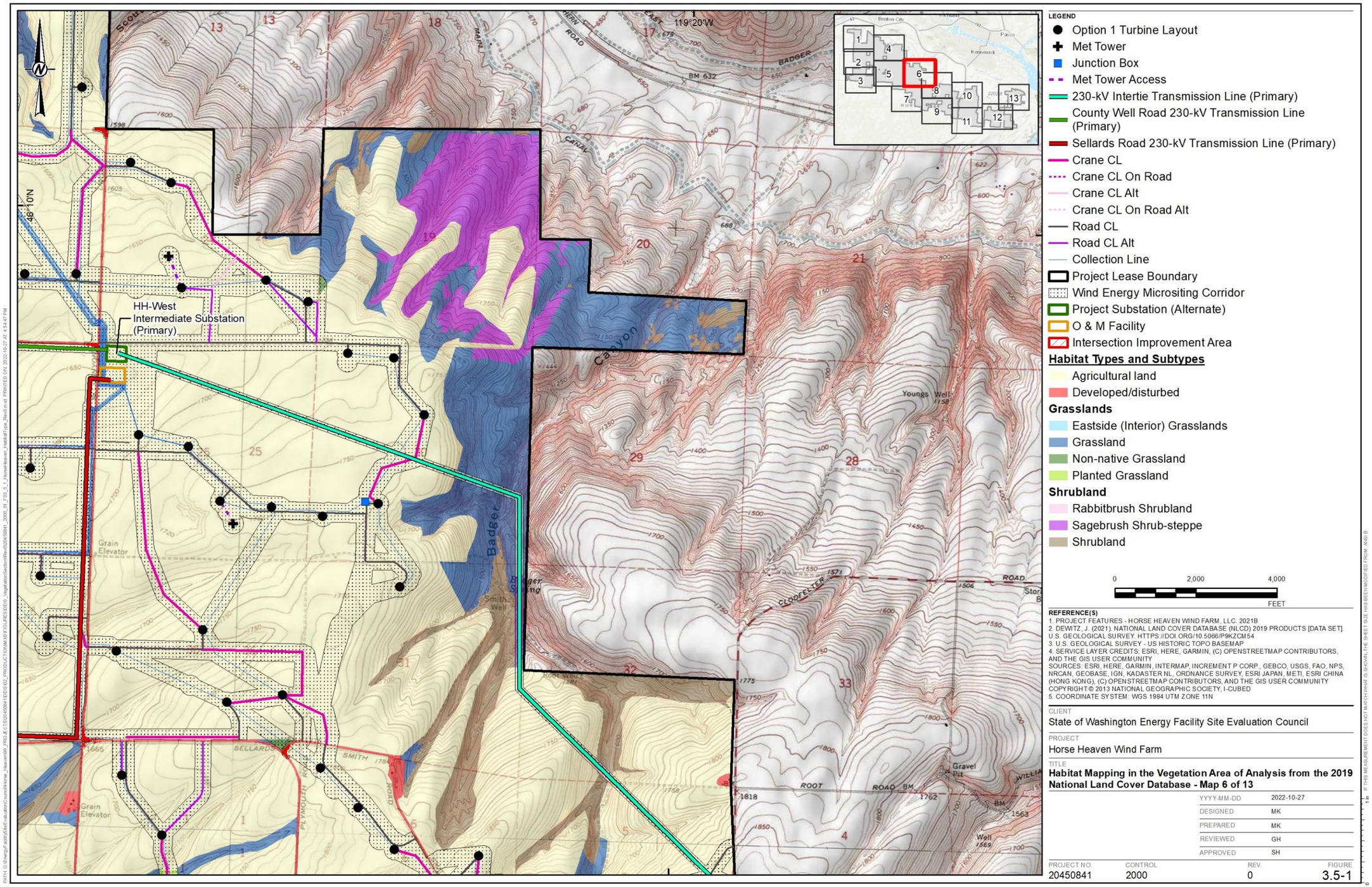

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 6 of 13

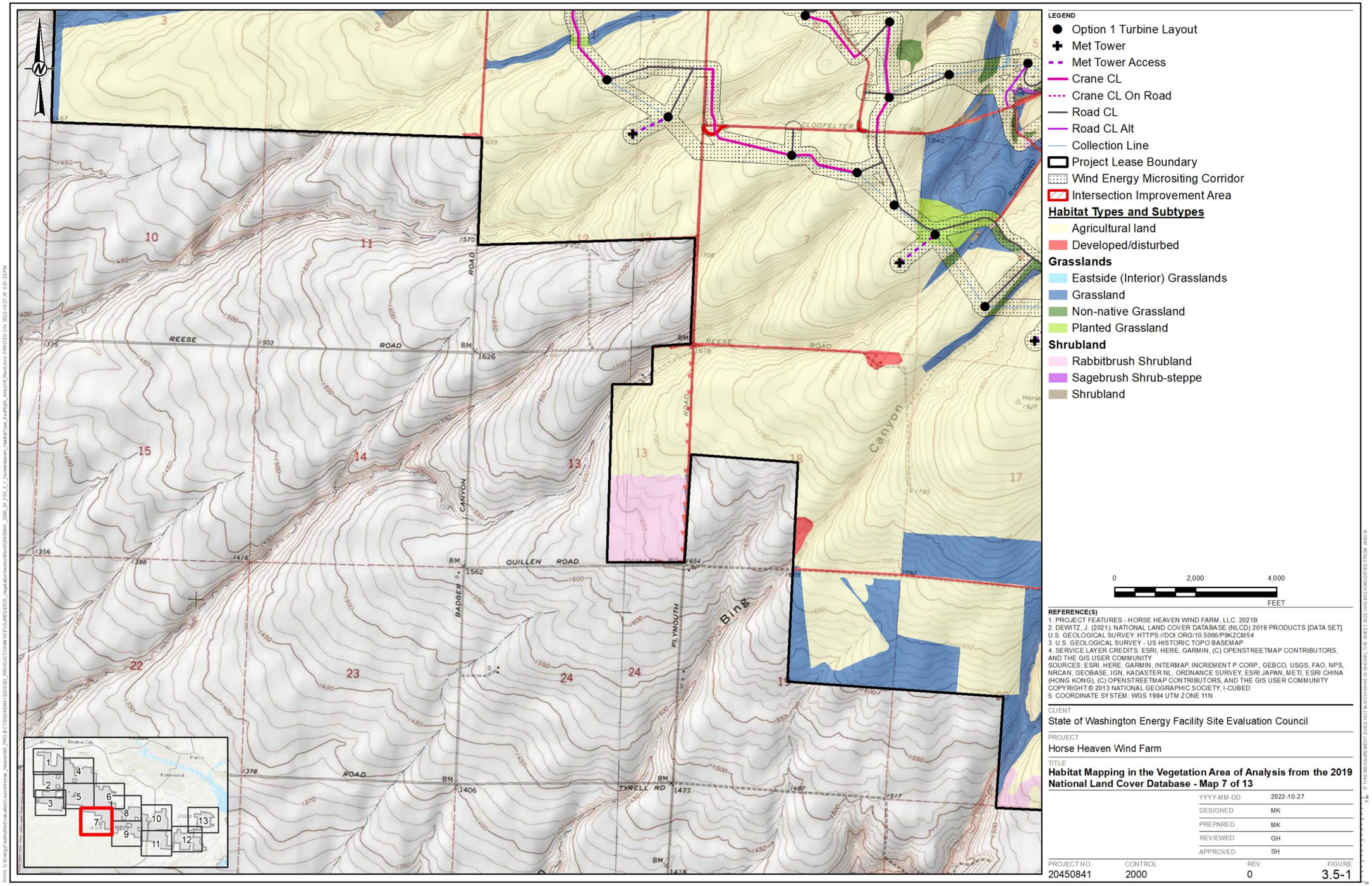

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 7 of 13

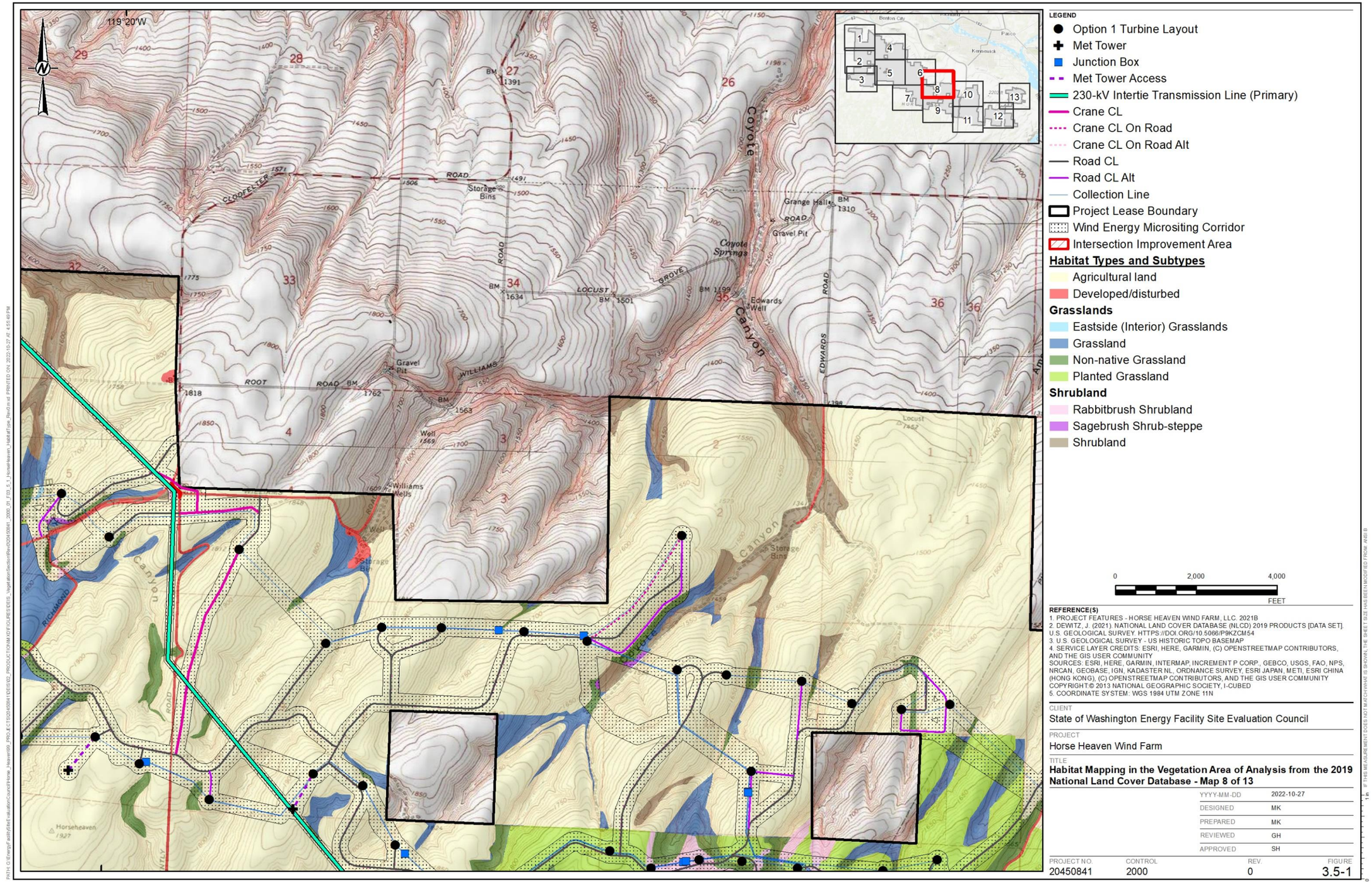

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 8 of 13

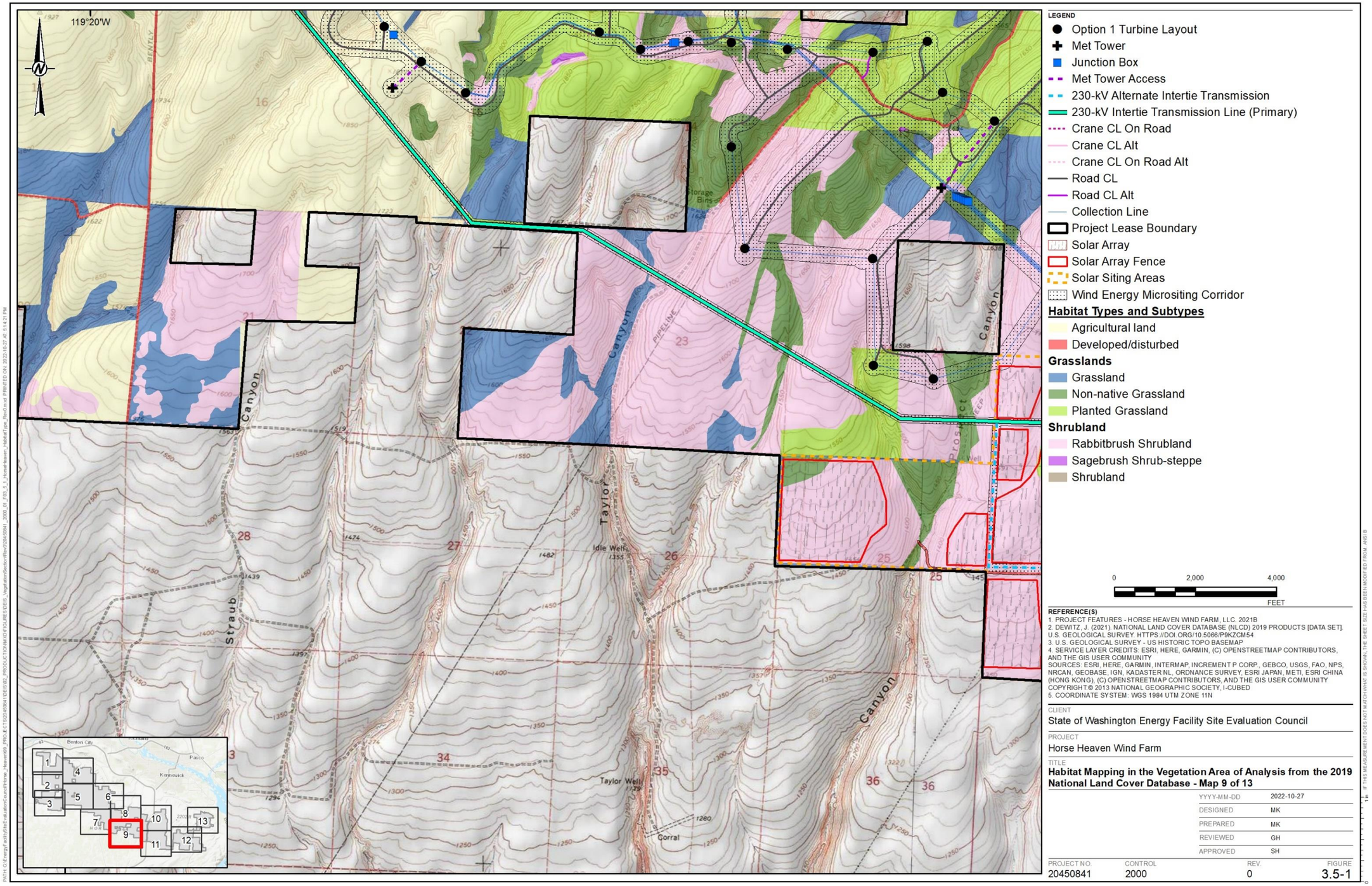

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 9 of 13

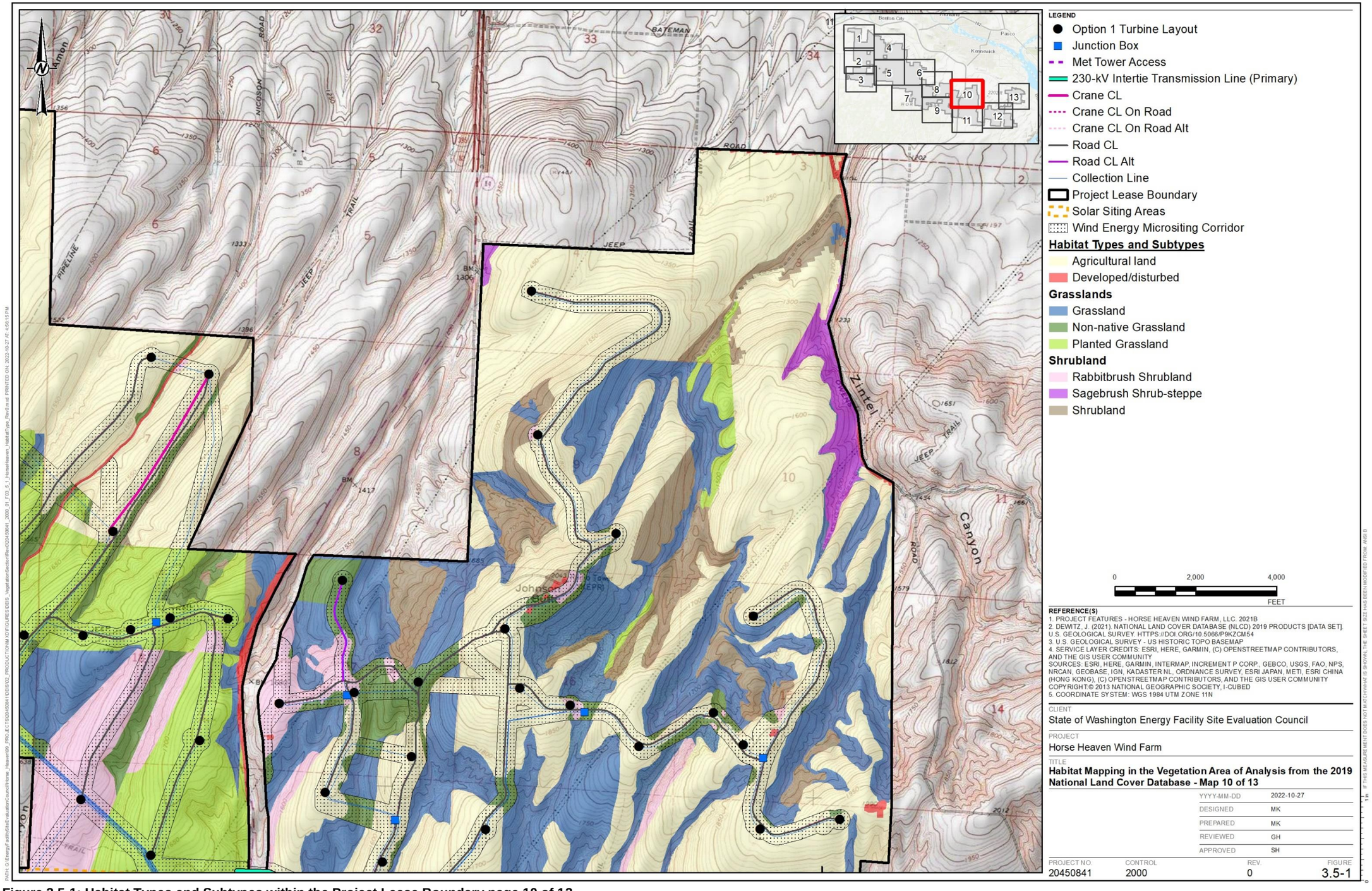

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 10 of 13

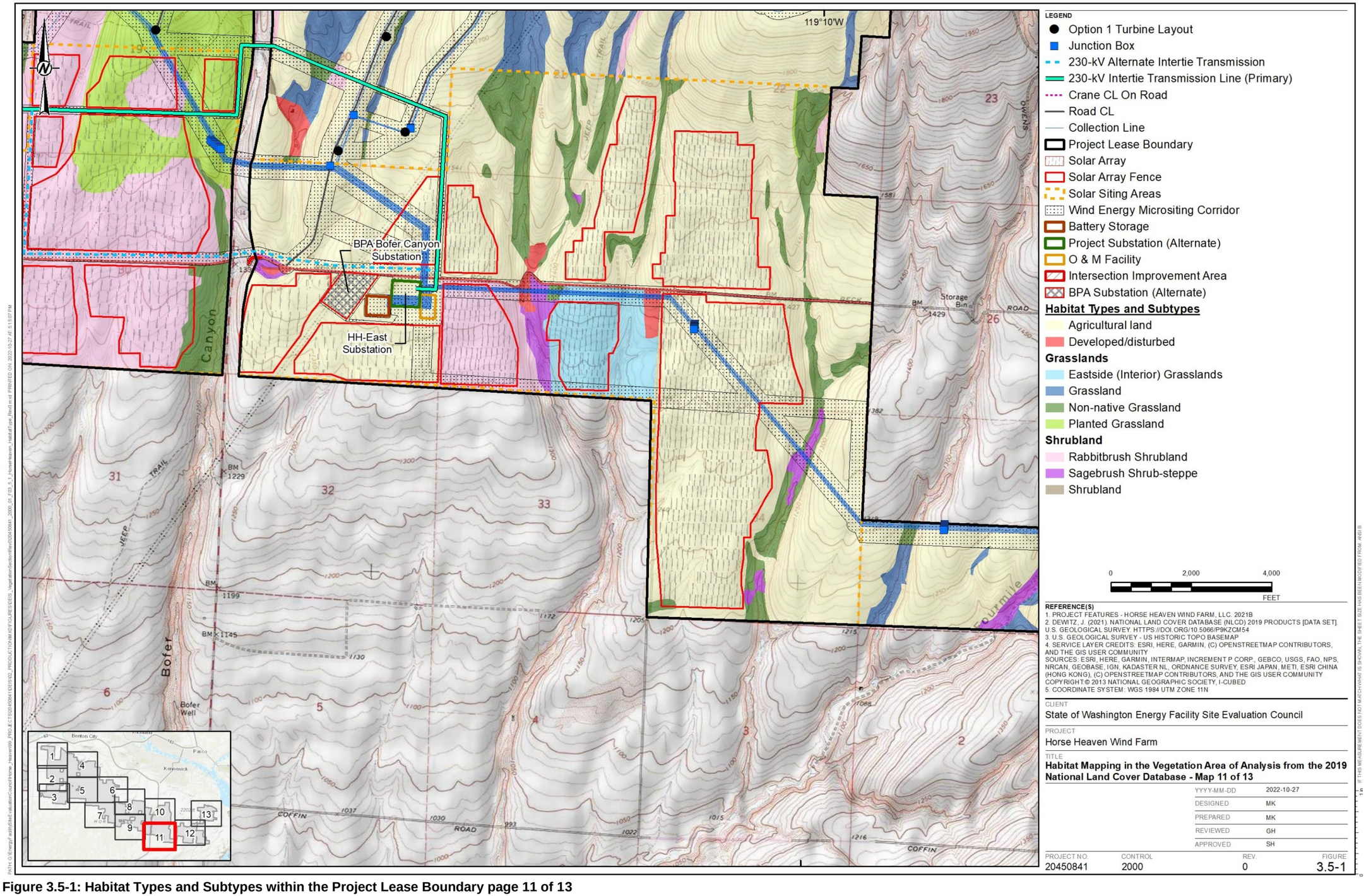

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 11 of 13

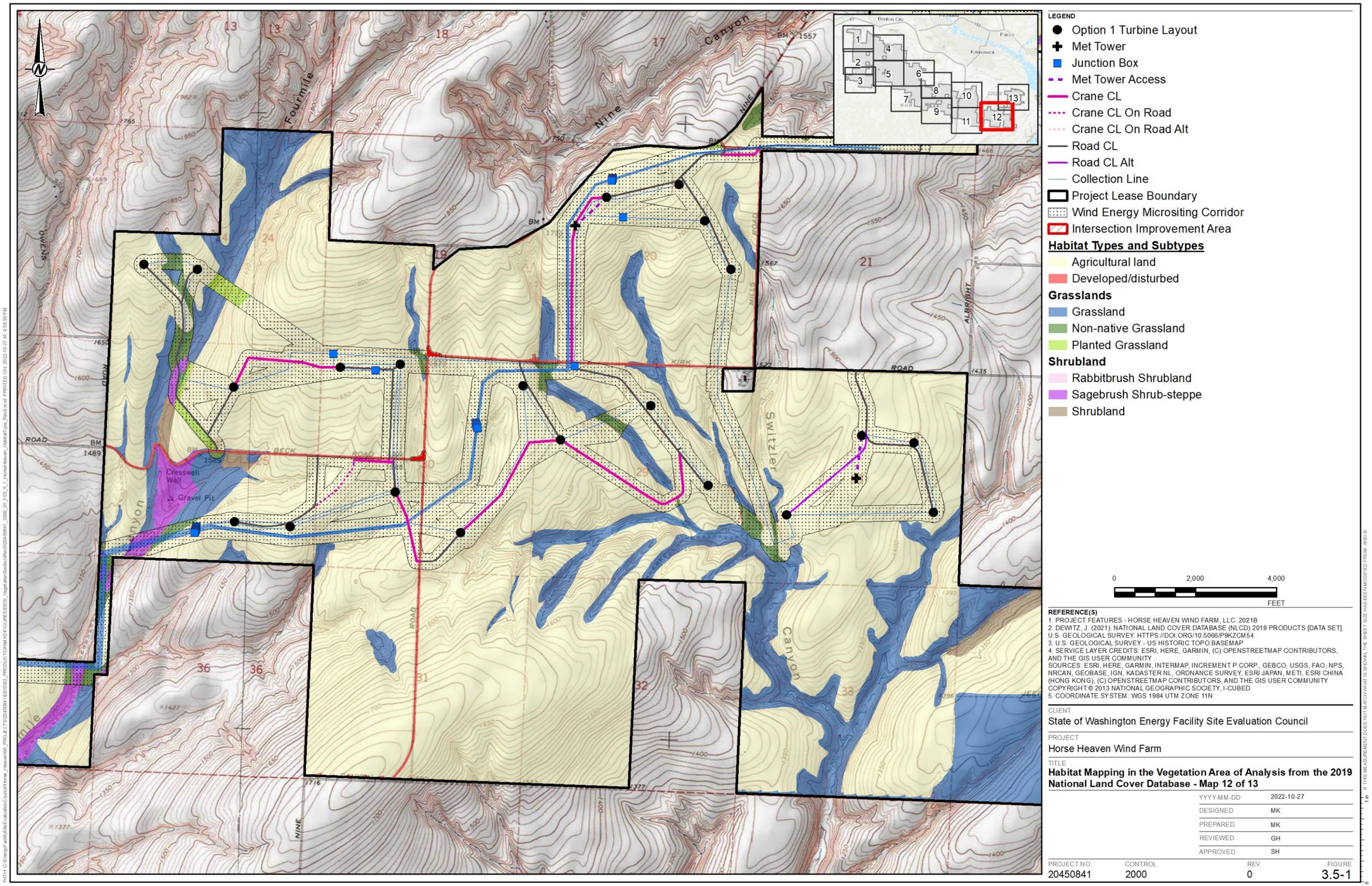

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 12 of 13

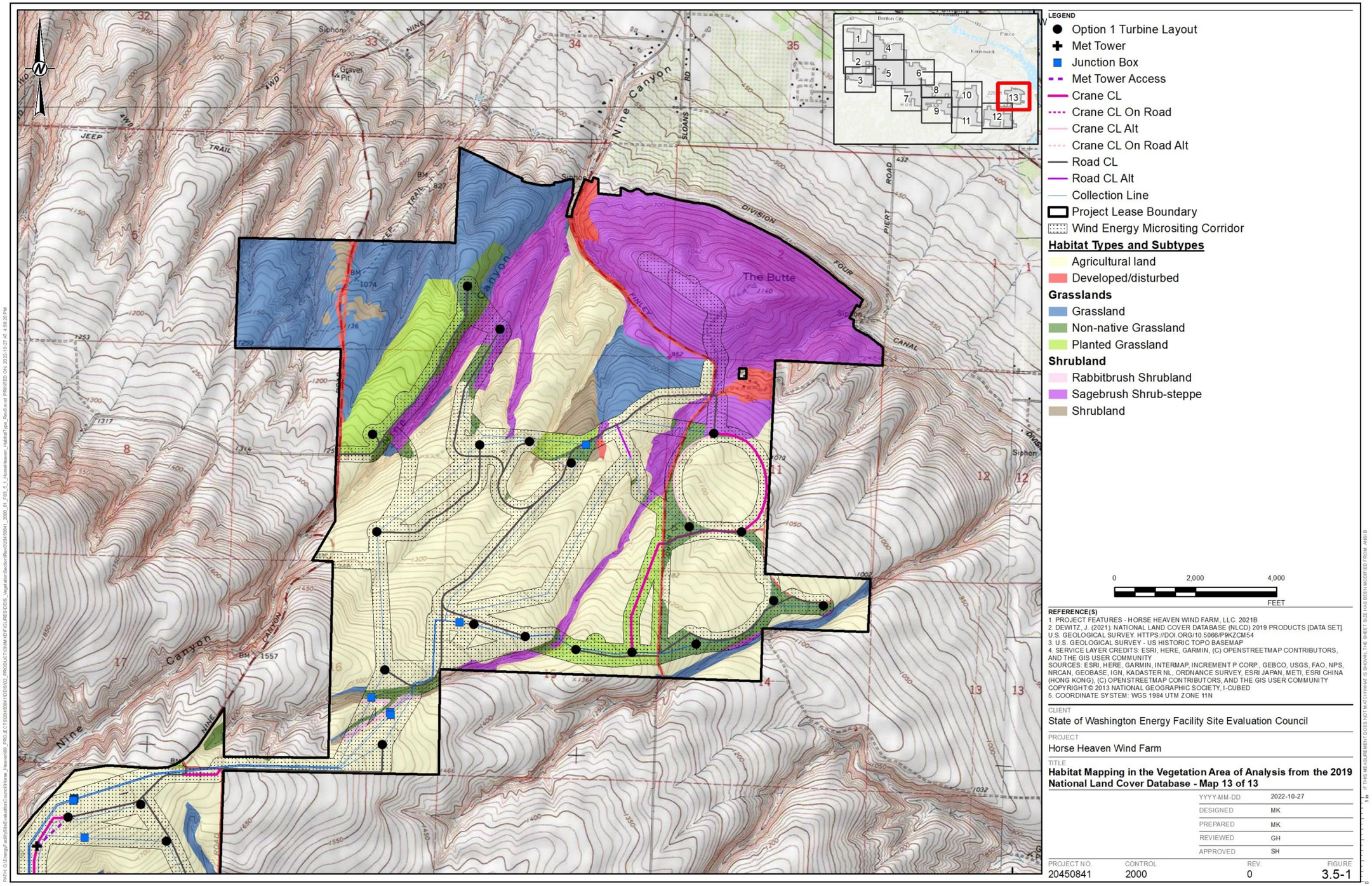

Figure 3.5-1: Habitat Types and Subtypes within the Project Lease Boundary page 13 of 13

3.5.2.2 Habitat Mapping in the Vegetation Area of Analysis

Habitat mapping within the larger VAA, outside the Lease Boundary, was not available from the Applicant. To describe habitat within the VAA, data on habitat types were obtained from 2019 NLCD data (MRLC n.d.). This represents the best available data for the VAA. The data available from the Multi-Resolution Land Characteristics Consortium (MRLC) (n.d.) are low resolution, leading to inaccurate estimates in the total acreage. The data were summarized using a proportional value rather than the total acreage and provided as a percentage of the overall area to adjust for the low resolution. A summary of habitat types within areas of the proposed disturbance, the Lease Boundary, and the greater VAA is provided in **Table 3.5-4**. The habitat mapping in the VAA is provided in **Figure 3.5-2**. While it is understood that these data may overestimate or underestimate the amount of certain habitat types, they are nevertheless useful for understanding habitat types available in the surrounding area and therefore potential impacts on these habitats.

Habitat types within the VAA are described below (MRLC n.d.).

- **Barren Land:** areas of bedrock, desert pavement, scarps, talus, etc., where vegetation accounts for less than 15 percent of total cover
- **Cultivated Crops:** areas used to produce annual crops, including agricultural fields, orchards, and vineyards
- **Deciduous Forest:** areas dominated by trees taller than 5 meters and containing greater than 20 percent total vegetation cover
- **Developed:** developed is divided into four categories based on the estimated cover of impervious surfaces
  - **Developed, Open Space:** areas of mixed use but mostly vegetated with lawn grasses, with impervious surfaces accounting for less than 20 percent of total cover
  - **Developed, Low Intensity:** areas of mixed construction and vegetation, with impervious surfaces accounting for 20 to 40 percent of total cover
  - **Developed, Medium Intensity:** areas of mixed construction and vegetation, with impervious surfaces accounting for 50 to 70 percent of total cover
  - **Developed, High Intensity:** areas of mixed construction and vegetation, with impervious surfaces accounting for 80 to 100 percent of total cover
- **Emergent Herbaceous Wetlands:** areas of perennial herbaceous vegetation accounting for greater than 80 percent of vegetative cover, and with soil or substrate periodically saturated with or covered by water
- **Evergreen Forest:** areas dominated by coniferous trees (75 percent of vegetation cover), where trees are greater than 5 meters and vegetation cover is greater than 20 percent
- **Grasslands/Herbaceous:** areas dominated by graminoid or herbaceous vegetation, generally greater than 80 percent of total vegetation cover
- **Open Water**: areas of open water with less than 25 percent cover of vegetation or soil
- **Pasture/Hay**: areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed and hay crops, typically on a perennial cycle

- **Shrub/Scrub**: areas dominated by shrubs less than 5 meters tall, with shrub canopy typically greater than 20 percent of total vegetation; includes true shrubs, early successional stage trees, and trees stunted due to environmental factors
- **Woody Wetlands**: areas where forest or shrubland vegetation accounts for greater than 20 percent of vegetation cover, with soil or substrate, periodically saturated with or covered by water

A summary of information from the 2019 NLCD (MRLC n.d.) mapping is provided based on the data presented in **Table 3.5-4**.

Vegetation Area of Analysis

- The description of cultivated crops from the 2019 NLCD habitat description is comparable to the Applicant's category of agriculture land. The 2019 NLCD shrub/scrub habitat description is comparable to the Applicant's category of shrubland habitat, which includes the habitat subtypes dwarf shrub-steppe, sagebrush shrub-steppe, rabbitbrush shrubland, and unclassified shrubland. The 2019 NLCD grassland/herbaceous habitat description is comparable to the Applicant's category of grassland habitat, which includes Eastside (interior) grassland (Eastside Steppe), planted grassland, non-native grassland, and unclassified grassland.
- Within the VAA, cultivated crops occupy the greatest proportion of land, covering 58.2 percent. Shrub/scrub makes up the second largest proportion, covering 23.1 percent. Grassland/herbaceous is the third largest proportion, covering 10.8 percent of the total area.

Lease Boundary

- The dominant habitat mapped in the 2019 NLCD (MRLC n.d.) mapping within the Lease Boundary is cultivated crops, covering 71.3 percent of the total area. The proportional area of cultivated crops mapped in the Lease Boundary is greater than that available in the VAA. Within the Lease Boundary, the proportional area of cultivated crops is comparable to the amount of area mapped as agriculture land by the Applicant's field surveys, which covers 73.8 percent of the total area within the Lease Boundary.
- Shrub/scrub habitat makes up the second largest area within the Lease Boundary, based on the 2019 NLCD (MRLC n.d.), covering 18.4 percent of the total area. The proportional area of shrub/scrub in the Lease Boundary is less than the proportional area available within the VAA. Within the Lease Boundary, the proportional area of shrub/scrub habitat is more than double the proportional area identified as shrubland by the Applicant. The Applicant's mapping identifies 8.1 percent of the total area within the Lease Boundary as shrubland habitat.
- Grassland/herbaceous habitat makes up the third largest area within the Lease Boundary, based on the 2019 NLCD (MRLC n.d.), covering 5.0 percent of the total area. The proportional area of grassland/herbaceous in the Lease Boundary is less than the proportional area available within the VAA. The proportional area of grassland/ herbaceous habitat in the Lease Boundary is less than the proportional area identified as grassland by the Applicant. The Applicant's mapping identifies 16.9 percent of the total area within the Lease Boundary as grassland habitat.

Comprehensive Project

- The dominant habitat type mapped in the 2019 NLCD (MRLC n.d.) within the Comprehensive Project is cultivated crops, covering 77.3 percent of the total area. The proportional area of cultivated crops mapped in the Comprehensive Project is greater than that available in the VAA. The proportional area of cultivated

crops is comparable to the area mapped as agricultural land by the Applicant's field surveys, which covers 78.6 percent of the total area within the Comprehensive Project.

- Shrub/scrub habitat makes up the second largest area within the Comprehensive Project, based on the 2019 NLCD (MRLC n.d.), covering 16.6 percent of the total area. The proportional area of shrub/scrub habitat mapped in the Comprehensive Project is less than that available in the VAA. The proportional areas of shrub/scrub are approximately double the proportional area identified as shrubland habitat by the Applicant. The Applicant's mapping indicates 8.0 percent of the total area within the Micrositing Corridor as shrubland habitat.
- Grassland/herbaceous habitat makes up the fourth largest area within the Micrositing Corridor, based on the 2019 NLCD (MRLC n.d.), covering 1.7 percent of the total area. The proportional area of grassland/herbaceous habitat is less than available in the VAA. The proportional area of grassland/herbaceous habitat is less than the proportional area of grassland habitat identified by the Applicant, which makes up 12.3 percent of the total area.

Wind Energy Micrositing Corridor

- The dominant habitat type mapped in the 2019 NLCD (MRLC n.d.) within the Wind Energy Micrositing Corridor is cultivated crops, covering 75.6 percent of the total area. The proportional area of cultivated crops mapped in the Micrositing Corridor is greater than that available in the VAA. The proportional area of cultivated crops is comparable to the area mapped as agricultural land by the Applicant's field surveys, which covers 77.9 percent of the total area within the Micrositing Corridor.
- Shrub/scrub habitat makes up the second largest area within the Micrositing Corridor, based on the 2019 NLCD (MRLC n.d.), covering 14 percent of the total area. The proportional area of shrub/scrub habitat mapped in the Micrositing Corridor is less than that available in the VAA. The proportional areas of shrub/scrub are more than double the proportional area identified as shrubland habitat by the Applicant. The Applicant's mapping indicates 6.5 percent of the total area within the Micrositing Corridor as shrubland habitat.
- Grassland/herbaceous habitat makes up the fourth largest area within the Micrositing Corridor, based on the 2019 NLCD (MRLC n.d.), covering 3 percent of the total area. The proportional area of grassland/herbaceous habitat is less than that available in the VAA. The proportional area of grassland/herbaceous habitat is less than the proportional area of grassland habitat identified by the Applicant, which makes up 13.9 percent of the total area.

Solar Siting Areas

- The dominant habitat type in all three Solar Siting Areas is cultivated crops, based on the 2019 NLCD (MRLC n.d.); however, the proportional area of cultivated crops varies among the Solar Siting Areas.
  - The East Solar Field has the smallest mapped area of cultivated crops, covering 57.3 percent of the total area based on the 2019 NLCD (MRLC n.d.). The proportional area of cultivated crops within the East Solar Field is comparable to the proportional area mapped in the VAA. The proportional area of cultivated crops is comparable to the proportional area of agriculture land identified by the Applicant's field surveys, which classified 56.3 percent of the total area as agriculture land.
  - The County Well Solar Field has 90.5 percent of the total area mapped as cultivated crops based on the 2019 NLCD (MRLC n.d.). The County Well Solar Field occupies a larger proportional area of cultivated

crops than is available in the VAA. The proportional area of cultivated crops is slightly less than the proportional area of agriculture land identified by the Applicant's field surveys, which classified 96.4 percent of the total area as agriculture land.

- The Sellards Solar Field has the highest proportion of cultivated crops, with 93.9 percent based on the 2019 NLCD (MRLC n.d.). The Sellards Solar Field occupies a larger proportional area of cultivated crops than is available in the VAA. The proportional area of cultivated crops is slightly more than the proportional area identified by the Applicant's field surveys, which classified 89.8 percent of the total area as agriculture land.

- Shrub/scrub habitat makes up the second largest area within all three Solar Siting Areas, based on the 2019 NLCD (MRLC n.d.); however, the proportional area varies by Solar Siting Area.
  - The East Solar Field has the largest area mapped as shrub/scrub, covering 41.3 percent of the total area from the 2019 NLCD (MRLC n.d.). The proportional area of shrub/scrub within the East Solar Field is greater than the proportional area mapped in the VAA. The shrub/scrub proportional area is greater than the proportional area of shrubland habitat identified by the Applicant's field surveys, which classified 24.5 percent of the total area as shrubland.
  - The County Well Solar Field has 7.9 percent mapped as shrub/scrub, based on the 2019 NLCD (MRLC n.d.). The County Well Solar Field occupies a smaller proportional area of shrub/scrub than is available in the VAA. The shrub/scrub proportional area is greater than the proportional area of shrubland habitat identified by the Applicant's field surveys, which did not identify any shrubland within the County Well Solar Field.
  - The Sellards Solar Field has the lowest proportional area of shrub/scrub, which covers 5.2 percent based on the 2019 NLCD (MRLC n.d.). The Sellards Solar Field occupies a smaller proportional area of shrub/scrub than is available in the VAA. The proportional area of shrub/scrub is greater than the proportional area of shrubland habitat identified by the Applicant's field surveys, which classified 0.6 percent of the total area as shrubland.
- Grassland/herbaceous habitat within the Solar Siting Areas varies but occupies a relatively small area of the total.
  - The East Solar Field has a proportional area of 0.4 percent grassland/herbaceous habitat, based on the 2019 NLCD (MRLC n.d.). The proportional area of grassland/herbaceous habitat within the East Solar Field is less than the proportional area available in the VAA. The grassland/herbaceous habitat proportional area is less than the proportional area of grassland habitat identified by the Applicant's field surveys, which classified 18 percent of the total area as grassland.
  - The County Well Solar Field has 0.6 percent mapped as grassland/herbaceous based on the 2019 NLCD (MRLC n.d.). The County Well Solar Field occupies a smaller proportional area of grassland/herbaceous habitat than is available in the VAA. The grassland/herbaceous proportional area is less than the proportional area of agriculture land identified by the Applicant's field surveys, which identified 2.5 percent of the total area as grassland.
  - The Sellards Solar Field does not include any grassland/herbaceous habitat, based on the 2019 NLCD (MRLC n.d.). The Sellards Solar Field occupies a smaller proportional area of grassland/herbaceous habitat than is available in the VAA. The proportional area of grassland/herbaceous habitat is less than

the proportional area of grassland habitat identified by the Applicant's field surveys, which classified 8.3 percent of the total area as grassland.

Based on a comparison of the proportional area identified by the 2019 NLCD data (MRLC n.d.) and the field-verified habitat types mapped by the Applicant (**Table 3.5-4**), the 2019 NLCD mapping provided proportional area estimates similar to the Applicant's field-verified mapping for cultivated crops. However, the 2019 NLCD mapping tended to overestimate the amount of shrub/scrub habitat in the Lease Boundary, Wind Energy Micrositing Corridor, and Solar Siting Areas in comparison to the Applicant's field-verified mapping. Furthermore, the 2019 NLCD mapping tended to underestimate the amount of grassland/herbaceous habitat within the Micrositing Corridor and Solar Siting Areas in comparison to the Applicant's field-verified mapping.

From the VAA data, it is apparent the Micrositing Corridor, Sellards Solar Field, and County Well Solar Field have been sited in areas to maximize cultivated crop land cover, as the proportional area of cultivated crops is greater than available in the VAA.

The 2019 NLCD data are too coarse to identify Priority Habitats; however, the Shrub-steppe Priority Habitat would fall within shrub/scrub, and the Eastside Steppe Priority Habitat would fall within the NLCD grasslands/ herbaceous category. Priority Habitat data obtained from WDFW (WDFW 2022) indicate approximately 67,691.5 acres of Priority Habitat within the VAA. This includes approximately 37,175.7 acres of Eastside Steppe and 30,515.8 acres of Shrub-steppe Priority Habitat. Priority Habitat summaries based on the WDFW data are provided for the VAA, Lease Boundary, and Project components below.

- Eastside Steppe covers 18.3 percent of the VAA, and Shrub-steppe covers 15.1 percent of the VAA.
- Eastside Steppe covers 13.3 percent of the Lease Boundary, and the Shrub-steppe covers 10.2 percent of the Lease Boundary.
- Within the Wind Energy Micrositing Corridor, Eastside Steppe covers 8.1 percent of the total area and shrub-steppe covers 6.1 percent.
- Within the Solar Siting Areas, Eastside Steppe covers 13.5 percent of the total area and shrub-steppe covers 7.2 percent.

Table 3.5-4: Proportion of Habitat Types in the Vegetation Assessment Area from the National Land Cover Database and the Applicant's Habitat Mapping

Habitat Type/Subtype	Vegetation Assessment Area (%)	Lease Boundary (%)	Comprehensive Project (%)	Micrositing Corridor (%)	East Solar Field (%)	County Well Solar Field (%)	Sellards Solar Field (%)
National Land Cover Database[(a)]							
Barren Land	<0.1	0	0	0	0	0	0
Cultivated Crops	58.2	71.3	77.3	75.6	57.3	90.5	93.9
Deciduous Forest	<0.1	0	0	0	0	0	0
Developed, High intensity	<0.1	<0.1	<0.1	<0.1	0	0	0
Developed, Low intensity	1.3	0.4	0.4	0.6	<0.1	0.2	0.1
Developed, Medium intensity	0.4	0.1	0.1	0.1	<0.1	<0.1	<0.1
Developed, Open Space	1.8	1.4	1.6	2.4	0.8	0.9	0.7
Emergent Herbaceous Wetlands	0.1	<0.1	0	0	0	0	0
Evergreen Forest	<0.1	0	0	0	0	0	0
Grasslands/Herbaceous	10.8	5.0	1.7	3.0	0.4	0.6	0
Open Water	0.5	<0.1	<0.1	<0.1	0	0	0
Pasture/Hay	3.7	3.6	2.4	4.4	0.1	<0.1	0
Shrub/Scrub	23.1	18.4	16.6	14.0	41.3	7.9	5.2
Woody Wetlands	0.1	0	0	0	0	0	0
Applicant's Habitat Mapping[(b)]							
Agriculture Land	N/A	73.8	78.6	77.9	56.3	96.4	89.8
Developed/Disturbed	N/A	1.2	1.0	1.7	1.2	1.0	1.3
Total Grassland	N/A	16.9	12.3	13.9	18.0	2.5	8.3
Total Shrubland	N/A	8.1	8.0	6.5	24.5	0	0.6

(a) National Land Cover Data (MRLC n.d.)

(b) Calculations were completed using the spatial layers provided by the Applicant and were completed for each Project component independent of the others (Horse Heaven Wind Farm, LLC 2021a). Areas of overlap may occur between Project components (e.g., the Micrositing Corridor may extend into the Solar Siting Area). Total grassland and total shrubland were included rather than the Applicant's habitat subtypes to better align with the NLCD.

N/A = not applicable

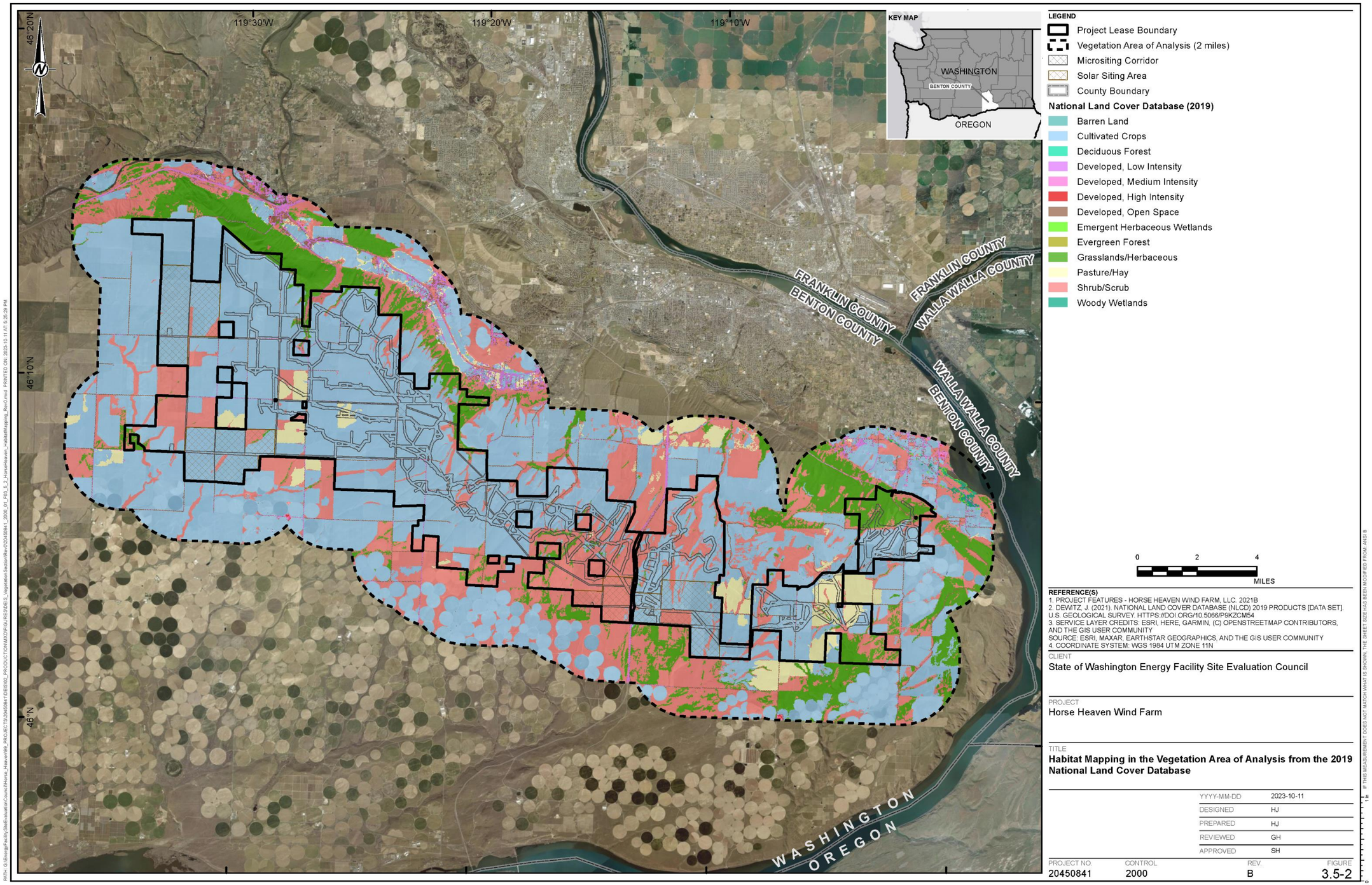

Figure 3.5-2: Habitat Mapping in the Vegetation Assessment Area from the 2019 National Land Cover Database

3.5.2.3 Department of Natural Resources Land

The Lease Boundary is primarily sited on privately owned land; however, the Lease Boundary also overlaps with lands managed by the Washington State Department of Natural Resources (DNR). Five parcels of DNR-managed land overlap the Lease Boundary, which are shown in **Figure 3.5-3**.

Characterization of the five parcels of DNR land were provided by a representative of DNR in communication with the Washington Energy Facility Site Evaluation Council (EFSEC) (Unland 2022). The parcels of DNR land are labeled in **Figure 3.5-3** using the Parcel ID.

- Parcel 13686: The DNR land is located within the western end of the Lease Boundary. The area is predominantly agriculture land and invasive annual grassland. The Sellards Solar Field and Wind Energy Micrositing Corridor would intersect this parcel of DNR land.
- Parcel 13687: The DNR land is located within the western end of the Lease Boundary. The area is predominantly agriculture land. The Micrositing Corridor would intersect this parcel of DNR land.
- Parcel 11679: The DNR land is located within the central portion of the Lease Boundary, east of Interstate 82. The area is high in invasive species and of poor quality. The Micrositing Corridor would intersect this parcel of DNR land.
- Parcel 13679: The DNR land is located in the southeast end of the Lease Boundary. Some shrub-steppe habitat occurs within draws but is unlikely to interact with the Project. The Micrositing Corridor would intersect this parcel of DNR land.
- Parcel 11670: The DNR land is located within the eastern end of the Lease Boundary. High-quality shrub-steppe occurs within the draws of these areas, primarily in the northwest corner. The Micrositing Corridor would intersect this parcel of DNR land.

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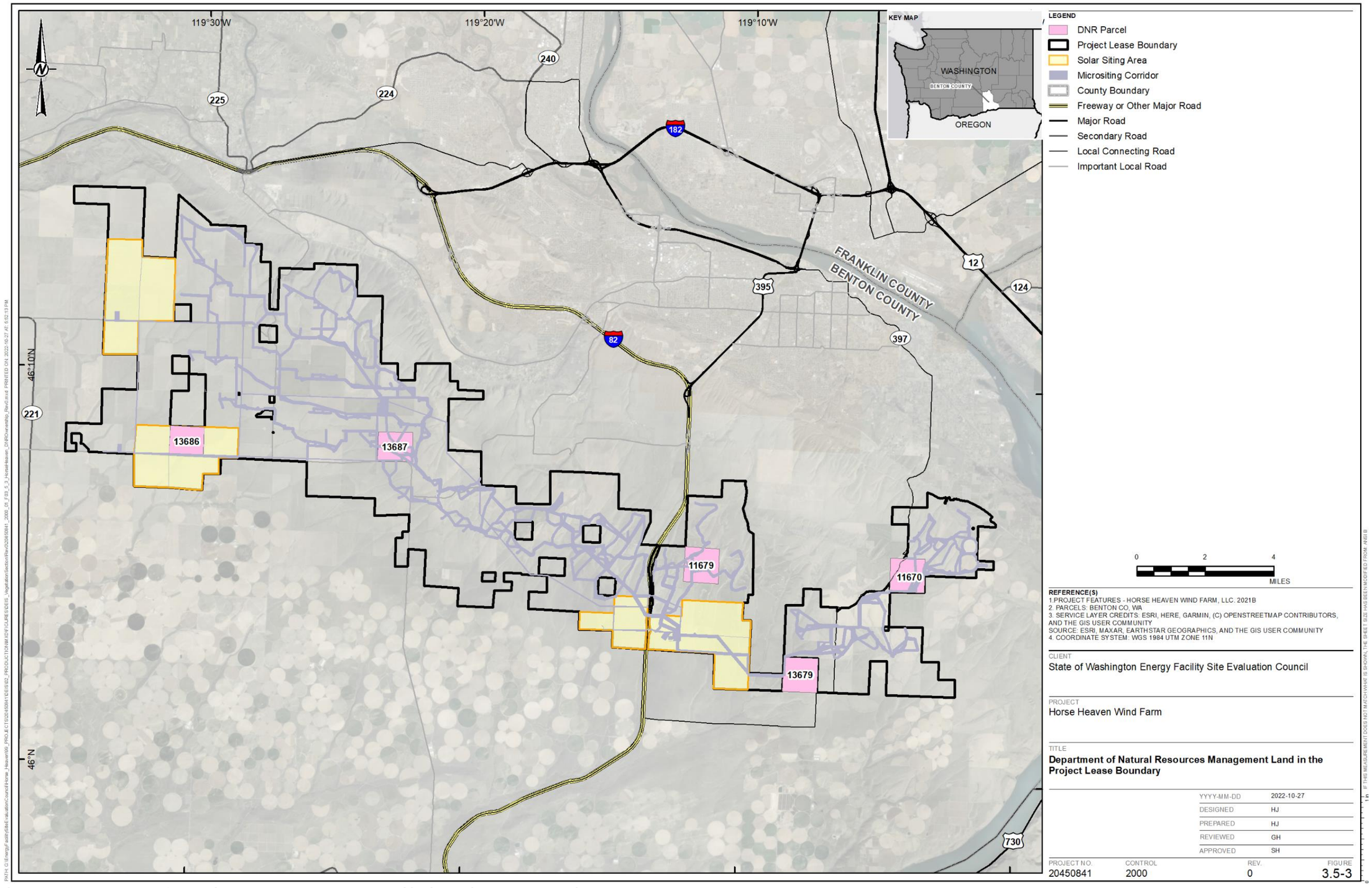

Figure 3.5-3: Department of Natural Resources Management Land in the Project Lease Boundary

3.5.2.4 Priority Habitat

Habitats that are prioritized for conservation and management by WDFW are called Priority Habitats. A Priority Habitat may refer to a unique vegetation association (e.g., shrub-steppe) or a particular habitat feature (e.g., cliffs) (WDFW 2008). Three habitat subtypes identified within the Lease Boundary are considered Priority Habitat. The dwarf shrub-steppe and sagebrush shrub-steppe are both Shrub-steppe Priority Habitat. Shrub-steppe Priority Habitat is a non-forested vegetation type characterized by a conspicuous shrub layer dominated by sagebrush and an understory layer dominated by native perennial bunchgrass (WDFW 2008). The areas classified as Eastside (interior) grassland by Johnson and O'Neil (2001) are synonymous with the Eastside Steppe Priority Habitat (WDFW 2008). Eastside Steppe Priority Habitat is characterized as a non-forested habitat dominated by native perennial bunchgrasses and forbs (WDFW 2008).

Shrub-steppe and Eastside Steppe Priority Habitats are presently limited in the Lease Boundary and surrounding VAA. Most areas suitable for agriculture have been converted to cropland in the vicinity of the Lease Boundary leaving minimal areas as native shrub-steppe or grassland. Native shrub-steppe and grasslands remaining are highly fragmented. Sagebrush shrub-steppe is one of the most at-risk ecosystems in the United States due to fragmentation (USFWS 2014). This trend is consistent for sagebrush shrub-steppe throughout eastern Washington, where sagebrush ecosystems are becoming increasingly fragmented by agriculture, urbanization, energy and natural resource development, and livestock grazing (Knick et al. 2003; USFWS 2014). Smaller areas of remnant ecosystems are less resilient against disturbance. For example, fragmentation that results from development of linear features such as road networks facilitates the introduction and spread of noxious weeds that change vegetation communities (Knick et al. 2003). In addition, the increasing need for energy development has resulted in habitat fragmentation of shrub-steppe. Shrub-steppe naturally has an unequal distribution of resources, and with increased fragmentation, wildlife species dependent on shrub-steppe require increasingly larger areas to obtain necessary food, water, and shelter for survival (USFWS 2014). Further loss of the limited remnant shrub-steppe patches can result in disproportionate impacts on species that require this ecosystem for survival (USFWS 2014).

Tables 3.5-2 and 3.5-3 show the acreage of Priority Habitat within the Lease Boundary and Project Component Areas and in each of the Solar Siting Areas; however, it is also important to understand the quality of the Priority Habitat as measured against reference conditions. Habitat quality is reduced by past and present disturbance but can be improved by activities such as restoration. **Table 3.5-5** provides detailed descriptions of the characteristic vegetation and conditions for Shrub-steppe and Eastside Steppe Priority Habitat types as reference ecosystem conditions, as well as common disturbance indicators, such as invasive plants, which occur in these Priority Habitats (WDFW 2008). This table also provides a detailed description of the Priority Habitats observed within the Lease Boundary, in addition to the disturbance observed on site during field surveys. The location of identified Priority Habitat is provided in **Figure 3.5-1** (Horse Heaven Wind Farm, LLC 2022).

As shown in **Table 3.5-5**, most of the Priority Habitat areas observed in the Wind Energy Micrositing Corridor and Solar Siting Areas, where field surveys were conducted, are already fragmented by agriculture and have undergone some degree of impact from invasive plants. However, these areas are some of the only intact Shrub-steppe and Eastside Steppe ecosystems remaining within the vicinity of the Lease Boundary. Within the Lease Boundary, Priority Habitat is limited to the northern edge, draws and canyons, and areas around the East Solar Field, as shown in **Figure 3.5-1**. Within the VAA, potential Priority Habitat is limited to the northern slope of the Horse Heaven Hills, the central area near the East Solar Field, and small patches in the south, as shown in **Figure 3.5-2**.

Table 3.5-5: WDFW Priority Habitat Description for Reference Ecosystems and Corresponding Habitat Types in the Lease Boundary

WDFW Priority Habitat	Description of WDFW Priority Habitat[(a)]	ASC Priority Habitat Subtype and Location in the Lease Boundary	Description of Habitat Subtype in Lease Boundary Based on Conditions Observed on Site[(b)]	Disturbance Observed during Field Surveys in Priority Habitat on Site[(b)]
Shrub-steppe	▪ Dominated by bunchgrasses and a conspicuous layer of shrubs ▪ **Indicator shrubs:** big sagebrush (*Artemisia tridentata*), antelope bitterbrush (*Purshia tridentata*), threetip sagebrush (*Artemisia tripartita*), scabland sagebrush (*Artemisia rigida*), dwarf sagebrush (*Artemisia arbuscula*) ▪ **Indicator grasses:** bunchgrasses - Idaho fescue (*Festuca idahoensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg bluegrass (*Poa secunda*), Thurber's needlegrass (*Achnatherum thurberianum*), needle-and-thread grass (*Hesperostipa comata*) ▪ Forb layer variable depending on precipitation ▪ Disturbed sites have an increase of non-natives such as cheatgrass (*Bromus tectorum*) or	**Dwarf shrub-steppe (rock buckwheat/ Sandberg bluegrass dwarf shrub)** ▪ Mapped within the Micrositing Corridor in the northwest corner of the Lease Boundary	▪ **Shrub layer:** rubber rabbitbrush (*Ericameria nauseosa*), green rabbitbrush (*Chrysothamnus viscidiflorus*), big sagebrush ▪ **Grass layer:** bluebunch wheatgrass and Sandberg bluegrass ▪ **Forb layer:** dominated by the native sub-shrub/dwarf shrub rock buckwheat (*Eriogonum sphaerocephalum*), with common yarrow (*Achillea millefolium*), rosy balsamroot (*Balsamorhiza rosea*), hoary aster *(Dieteria canescens*), Douglas' dustymaidens (*Chaenactis douglasii*), cushion fleabane (*Erigeron poliospermus*), narrowleaf goldenweed (*Nestotus stenophyllus*) ▪ **Lithosol soils** ▪ **Invasive species:** cheatgrass, cereal rye (*Secale cereale*), tall tumblemustard (*Sisymbrium altissimum*), yellow salsify (*Tragopogon dubius*)	▪ Invasive grasses (cheatgrass and cereal rye) indicated as dominant species in the dwarf shrub-steppe.
		Sagebrush shrub-steppe ▪ North-central and northeastern part of the Lease Boundary, mainly restricted to hillslopes and drainages that are too steep for agricultural production	▪ **Shrub layer:** big sagebrush dominant with spineless horsebrush (*Tetradymia canescens*), rubber rabbitbrush, green rabbitbrush ▪ **Grass layer:** bluebunch wheatgrass, Sandberg bluegrass, needle-and-thread grass ▪ **Forb layer:** Carey's balsamroot (*Balsamorhiza careyana*), common yarrow, long-leaf phlox (*Phlox longifolia*), low pussytoes (*Antennaria dimorpha*), shaggy fleabane (*Erigeron pumilus*), woolly plantain (*Plantago patagonica*), woollypod milkvetch (*Astragalus purshii*), sagebrush mariposa lily (*Calochortus macrocarpus* var. *macrocarpus*), wild blue flax (*Linum lewisii*)	▪ Habitat described as fragmented. ▪ Degraded from the high cover of non-native grass and forb species and/or grazing. ▪ Evidence of past wildfires was noted (presence of burned shrubs).

Table 3.5-5: WDFW Priority Habitat Description for Reference Ecosystems and Corresponding Habitat Types in the Lease Boundary

WDFW Priority Habitat	Description of WDFW Priority Habitat[(a)]	ASC Priority Habitat Subtype and Location in the Lease Boundary	Description of Habitat Subtype in Lease Boundary Based on Conditions Observed on Site[(b)]	Disturbance Observed during Field Surveys in Priority Habitat on Site[(b)]
	crested wheatgrass (*Agropyron cristatum*)		▪ **Invasive species:** cheatgrass, redstem stork's bill (*Erodium cicutarium*), prickly lettuce (*Lactuca serriola*), yellow salsify, bulbous bluegrass (*Poa bulbosa*), cereal rye, Russian thistle (*Salsola tragus*), tall tumblemustard	
Eastside Steppe	▪ Dominated by forbs and grasses ▪ Shrubs are absent or scattered ▪ **Indicator grasses:** bluebunch wheatgrass, Idaho fescue, Sandberg bluegrass, rough fescue, or needlegrass ▪ Disturbed sites have an increase of cheatgrass, spotted knapweed (*Centaurea stoebe*), yellow starthistle (*Centaurea solstitialis*), or Kentucky bluegrass (*Poa pratensis*)	**Eastside (interior) grassland** (Eastside Steppe) Mapped in three locations: East Solar Field, Badger Canyon, and an ephemeral drainage located along the Micrositing Corridor in the south-central part of the Lease Boundary	▪ **Shrub layer:** rabbitbrush, green rabbitbrush (<5% cover) ▪ **Grass layer:** bluebunch wheatgrass, Great Basin wildrye (*Leymus cinereus*), needle-and-thread, Sandberg bluegrass ▪ **Forb layer:** Carey's balsamroot, lupine (*Lupinus* sp.), common yarrow, Spalding's milkvetch (*Astragalus spaldingii*), shaggy fleabane, fiddleneck (*Amsinckia* sp.), triternate biscuitroot (*Lomatium triternatum*), wild blue flax, common yarrow, woollypod milkvetch, woolly plantain ▪ **Invasive species:** cheatgrass, tall tumblemustard, bulbous bluegrass, cereal rye, prickly lettuce, yellow salsify, common stork's-bill	▪ The ephemeral drainage was degraded due to the high cover of invasive plants. ▪ The habitat quality on the east side of Badger Canyon was higher than the other Eastside (interior) grassland (Eastside Steppe) surveyed due to lower invasive plant cover and fewer evidence of cattle grazing). ▪ No young sagebrush observed in Badger Canyon except trace rubber rabbitbrush.

Sources:
(a) Description of Priority Habitat based on descriptions available from WDFW (2008).
(b) Description of the Priority Habitat subtypes obtained from Horse Heaven Wind Farm, LLC (2022) and Appendix K, Horse Heaven Wind Farm, LLC (2022) based on the observed site conditions.

3.5.3 Special Status Species

The Applicant defined the term “special status plant” to include federally listed endangered, threatened, or candidate vascular plant species and state-listed endangered, threatened, and sensitive vascular plant species as defined by the Washington Natural Heritage Program (WNHP) (Appendix K, Horse Heaven Wind Farm, LLC 2022). In this EIS, the term “special status” is expanded to include federally listed endangered, threatened, or candidate non-vascular plant species and lichen species and state-listed endangered, threatened, and sensitive non-vascular plant species and lichen species as defined by the WNHP (DNR 2021).

The Applicant conducted a background search for special status plant species. Twenty-nine special status plant species and one special status lichen species were identified as having the potential to occur within the Lease Boundary (Appendix K, Horse Heaven Wind Farm, LLC 2022;). Surveys for special status vascular plants were conducted within the Wind Energy Micrositing Corridor and Solar Siting Areas in 2020 and 2021. No special status vascular plants were observed during the field surveys (Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022). A complete list of vascular plants observed during field surveys is provided in Appendix K of the 2022 ASC and Attachment B of the 2021 Botany and Habitat Survey Report for Horse Heaven Wind Farm (Appendix K, Horse Heaven Wind Farm, LLC 2022).

The background review identified one special status lichen species, woven spore lichen (*Texosporium sancti-jacobi*), as potentially occurring within the Lease Boundary. Four occurrences of woven spore lichen were documented within 3 miles of the Lease Boundary, with the closest occurrence documented approximately 0.4 miles north of the Lease Boundary (Appendix K, Horse Heaven Wind Farm, LLC 2022). Field surveys conducted by the Applicant focused on identifying vascular special status plants and did not include non-vascular plants or lichens. Woven spore lichen has not been reported on any of the DNR-managed land that overlaps the Lease Boundary (Unland 2022). Tetra Tech assessed the habitat types within the Wind Energy Micrositing Corridor and Solar Siting Areas to identify potentially suitable habitats for woven spore lichen as part of the 2021 Botany and Habitat Survey Report for Horse Heaven Wind Farm (Appendix K, Horse Heaven Wind Farm, LLC 2022). Based on the assessment, approximately 18.9 acres are rated as potentially suitable for woven spore lichen. The area of suitable habitat corresponds to 10.9 acres of dwarf shrub-steppe and 8.0 acres of sagebrush shrub-steppe, located within the Micrositing Corridor.

The WNHP is Washington’s primary source of information about rare and endangered plant species and threatened ecosystems. Data were obtained from the WNHP and queried to identify special status species within the VAA (WNHP 2022).

Based on the habitat characteristics and habitat types available within the Lease Boundary, the special status species with the potential to occur in the Wind Energy Micrositing Corridor and Solar Siting Areas are given a rating for the potential of occurrence. The following ratings and definitions were used to describe the potential for occurrence:

- **Negligible:** No known occurrences in the VAA and no suitable habitat within the Lease Boundary, may also be used to describe species presumed extirpated
- **Unlikely:** No known occurrence in the VAA but suitable habitat within the Lease Boundary
- **Potential:** Known occurrence in the VAA and suitable habitat within the Lease Boundary
- **Likely:** Known occurrence within the Lease Boundary and suitable habitat within the Lease Boundary

- **Confirmed:** Known occurrence in areas associated with the Wind Energy Micrositing Corridor or Solar Siting Areas

Three records of special status species were obtained from the WNHP that occur within the VAA. Two of the species are known only from historical occurrences. Two records of woven spore lichen, documenting four locations in the VAA, are known to occur from extant records. **Table 3.5-6** summarizes the records of special status species, including the state status, description of the habitat requirements, and potential to occur within the Lease Boundary. Distances are provided from the nearest Project component; however, locations of special status species are sometimes imprecise depending on record age or to obscure precise locations to protect the species.

Table 3.5-6: Special Status Plant Species Documented in the Vegetation Assessment Area

Scientific Name	Common Name	State Status[a]	Location[b]	Habitat Characteristics[c]	Potential to Occur within the Lease Boundary
Vascular Plants					
Astragalus kentrophyta var. *douglasii*[d]	thistle milkvetch	X	Record occurs east of the Lease Boundary approximately 0.3 miles from the Micrositing Corridor at the nearest point.	Species grow in sandy substrate, in sand dunes, or along riverbanks. Restricted to low elevations, up to 400 feet.	Negligible: species is presumed extirpated from Washington State and record in the VAA is historical (from 1883), no suitable habitat in the Lease Boundary.
Cryptantha leucophaea[d]	gray cryptantha	T	Record occurs east of the Lease Boundary approximately 0.5 miles from the Micrositing Corridor at the nearest point.	Found in sandy substrate, primarily sand dunes, from 300 to 2,500 feet in elevation. Associated with sagebrush shrub-steppe species. Record occurs near the Columbia River. This species is endemic to the Columbia and lower Yakima Rivers.	Unlikely: record in the VAA is historical (from 1922). Primarily occurs in sand dunes but suitable habitat may occur in sagebrush shrub-steppe.
Lichen					
Texosporium sancti-jacobi	woven spore lichen	T	All locations are located northwest of the Lease Boundary. The closest record is 0.6 miles north of the Micrositing Corridor.	Occurs in relatively undisturbed areas dominated by native plants such as sagebrush (*Artemisia tridentata*), bitterbrush (*Purshia tridentata*), Idaho fescue (*Festuca idahoensis*), and bluebunch wheatgrass (*Pseudoroegneria spicata*). Analysis of the habitat on site identified 18.9 acres of potentially suitable habitat for woven sport lichen in dwarf shrub-steppe and sagebrush shrub-steppe habitat.	Potential: known occurrences in the VAA and suitable habitat in the dwarf shrub-steppe and sagebrush shrub-steppe habitats within the Lease Boundary.

[a] State Status obtained from WNHP (2021a) and WNHP (2011). State status definitions are provided below (WNHP 2021a):
X = Presume extirpated. Species have not been successfully relocated since 1978.
E = Endangered. A species, subspecies, or variety in danger of extinction throughout all or a significant portion of its range. Endangered species were not documented within the Assessment Area.
T = Threatened. A species, subspecies, or variety likely to become Endangered in the foreseeable future.
P = Proposed. A species, subspecies, or variety formally proposed for listed as Endangered or Threatened. Species proposed for listing as Endangered or Threatened were not documented within the Assessment Area.

[b] Location information obtained from WDFW (n.d.).

[c] Sources for habitat characteristics: Appendix K (Horse Heaven Wind Farm, LLC 2022); WNHP (2021b, 2022)

[d] Historical record

VAA = Vegetation Area of Analysis

3.5.4 Noxious Weeds

The term “noxious weeds” refers to plants legally designated as such in Washington State and Benton County. Noxious weeds in Washington are categorized into one of three classes based on their distribution within the state and the requirements for treatment. The three classes of noxious weeds are described below.

- Class A noxious weeds are non-native species that have a limited distribution in Washington State. Objectives are to eradicate existing infestations and prevent new ones. Eradication is required by law. There are 38 species of non-native plants that are classified as Class A noxious weeds in Benton County and the State of Washington (BCNWCB n.d.; WSNWCB n.d.).
- Class B noxious weeds are non-native species that occur only in portions of Washington State. Mandatory control is required in regions where these species are not yet widespread, and the prevention of new infestations is the primary goal. There are 66 species of non-native plants that are classified as Class B noxious weeds in Benton County and the State of Washington (BCNWCB n.d.; WSNWCB n.d.).
- Class C noxious weeds are already widespread in Washington or are of special interest to the agricultural industry. A county can enforce control of Class C noxious weeds if it is beneficial to that county. There are 52 species of non-native plants that are classified as Class C noxious weeds in Benton County and the State of Washington (BCNWCB n.d.; WSNWCB n.d.).

Surveys for noxious weeds were completed in 2020 and 2021 within the Micrositing Corridor and Solar Siting Areas, covering approximately 21,076 acres (Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022). An additional 604 acres within the Sellards Solar Siting Area have not been surveyed for noxious weeds (Appendix K, Horse Heaven Wind Farm, LLC 2022). A summary of noxious weeds documented during field surveys is provided in **Table 3.5-7**. The locations of noxious weeds observed during field surveys are available in Appendix K-17 of the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and Figures 4a through 4i in Appendix K (Horse Heaven Wind Farm, LLC 2022).

Three noxious weeds are abundant throughout the Wind Energy Micrositing Corridor and Solar Siting Areas: kochia (*Bassia scoparia*), rush skeletonweed (*Chondrilla juncea*), and cereal rye (*Secale cereale*).

Table 3.5-7: Noxious Weeds Observed during Field Surveys Conducted in 2020 and 2021 in the Wind Energy Micrositing Corridor and Solar Siting Areas

Scientific Name	Common Name	State and County Status[(a)]	Frequency
Bassia (Kochia) scoparia	kochia	B	Abundant. Frequently observed throughout the Micrositing Corridor and Solar Siting Areas.
Centaurea sp.	knapweed	B	Frequently observed in the central portion of the Micrositing Corridor and Solar Siting Areas. Several occurrences in the eastern and western portion of the Micrositing Corridor and Solar Siting Areas.
Centaurea solstitialis	yellow starthistle	B	Observed at two locations in the central portion of the Micrositing Corridor and Solar Siting Areas. Not observed during 2021 surveys.

Table 3.5-7: Noxious Weeds Observed during Field Surveys Conducted in 2020 and 2021 in the Wind Energy Micrositing Corridor and Solar Siting Areas

Scientific Name	Common Name	State and County Status[(a)]	Frequency
Chondrilla juncea	rush skeletonweed	B	Abundant. Frequently observed throughout the Micrositing Corridor and Solar Siting Areas.
Convolvulus arvensis	field bindweed	C	Observed at two locations in the eastern portion of the Micrositing Corridor and Solar Siting Areas. Not observed during 2020 surveys.
Onopordum acanthium	Scotch thistle	B	Observed at seven locations in the Micrositing Corridor and Solar Siting Areas.
Secale cereale	cereal rye	C	Abundant. Frequently observed through the Micrositing Corridor and Solar Siting Areas.

Sources: Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022
Notes:
[(a)] Class B noxious weeds: Non-native species presently limited to portions of Washington State. Species are designated for required control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In regions where Class B species are already abundant, control is decided at the local level, with containment as the primary goal (BCNWCB n.d.; WSNWCB n.d.).

Class C noxious weeds: Non-native species that are widespread in Washington State or are of special interest to the state's agricultural industry. The Class C status allows county weed boards to require control if locally desired, or they may choose to provide education or technical consultation (BCNWCB n.d.; WSNWCB n.d.).

Field surveys also identified non-native plants within the Wind Energy Micrositing Corridor and Solar Siting Areas, which are shown in **Table 3.5-8** (Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022). A non-native plant is a species of plant that has been introduced to an area or occurs outside its native range. Similar to noxious weeds, non-native plants can exhibit characteristics that make them competitive against native plants; however, the species listed in **Table 3.5-8** are not legally designated.

Table 3.5-8: Non-native Plants Observed during Field surveys in 2020 and 2021 in the Wind Energy Micrositing Corridor and Solar Siting Areas

Scientific Name	Common Name	Lifeform
Agropyron cristatum	crested wheatgrass	Grass
Amaranthus blitoides	matweed, prostrate pigweed	Forb
Bromus arvensis	field brome/Japanese brome	Grass
Bromus hordeaceus	soft brome	Grass
Bromus tectorum	cheatgrass	Grass
Ceratocephala testiculata	burr buttercup	Forb
Chorispora tenella	blue mustard	Forb
Descurainia sophia	flixweed	Forb
Draba verna	spring whitlow-grass	Forb
Erodium cicutarium	redstem, common stork's-bill, crane's-bill	Forb
Holosteum umbellatum	jagged-chickweed	Forb
Hordeum murinum	mouse barley	Grass

Table 3.5-8: Non-native Plants Observed during Field surveys in 2020 and 2021 in the Wind Energy Micrositing Corridor and Solar Siting Areas

Scientific Name	Common Name	Lifeform
Lactuca serriola	prickly lettuce	Forb
Lappula longispina	long-spined stickseed	Forb
Poa bulbosa	bulbous bluegrass	Grass
Polygonum aviculare	prostrate knotweed	Forb
Polypogon monspeliensis	annual rabbit's-foot grass	Forb
Robinia pseudoacacia	black locust	Tree
Salsola tragus	prickly Russian thistle	Forb
Sisymbrium altissimum	tall tumblemustard	Forb
Taraxacum officinale	common dandelion	Forb
Tragopogon dubius	yellow salsify	Forb
Triticum aestivum	wheat	Grass
Vulpia bromoides	brome fescue	Grass

Sources: Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022

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3.6 Wildlife and Habitat

This section describes the wildlife and supporting habitat in the proposed Horse Heaven Wind Farm (Project, or Proposed Action) Lease Boundary, including a 2-mile buffer (Wildlife Area of Analysis). Section 4.6 presents an analysis of the Project's potential impacts on wildlife and supporting habitat. The information provided herein is based on the detailed description of vegetation communities and habitat characteristics in Section 3.5 Vegetation.

Regulatory Setting

Regulations protecting wildlife and habitat, including migratory birds, special status species, and energy development guidance, are presented in **Table 3.6-1**.

Regulation, Statute, Guideline	Description
Federal	
Bald and Golden Eagle Protection Act (1940, as amended)	Prohibits taking a bald or golden eagle including their nests, eggs, or parts (e.g., feather) without a permit.
Endangered Species Act (1973)	Provides for the conservation of endangered and threatened species (including subspecies, varieties, and subpopulations) listed under the act and protects the habitats they rely on.
Migratory Bird Treaty Act of 1918	Prohibits taking (killing, capturing, selling, trading, and transporting) migratory bird species.
State	
State and Protected Species (WAC 220-610)	Classifies endangered and state protected species. Provides protection rules for bald eagle.
State of Washington Priority Habitat and Species List (WDFW 2008)	Priority Habitats are unique habitats or features that support biodiversity. Washington Department of Fish and Wildlife (WDFW) maintains a catalog of Priority Habitats and Species that are a priority for conservation and management. Priority species require protection due to population trends, sensitivity to disturbance and habitat alteration, or importance to communities.
RCW 77 Fish and Wildlife	Provides the revised and reorganized game code of Washington State as of 1980; clarifies and improves the administration of the state's game laws.
RCW 77.55 Construction Projects in State Waters	Requires proponents to obtain a permit for works conducted near protected state waters and fish habitat.
WDFW Wind Power Guidelines (WDFW 2009)	Provides guidance for the development of wind energy facilities that avoid, minimize, and mitigate impacts on fish and wildlife habitats. WDFW provides reviews and recommendations to the permitting authority based on environmental expertise.
Local	
Benton County Code – Title 15 Chapter 15.14 Fish and Wildlife Habitat Conservation Areas	Fish and wildlife habitat conservation areas relevant to vegetation resources include: ▪ Areas where state or federal designated endangered, threatened, and sensitive species have a primary association. ▪ State Priority Habitats and areas associated with state Priority Habitats. ▪ Habitats and species of local importance, which includes shrub-steppe habitat in Benton County. Development on conservation areas is prohibited unless federal or state permits or approval is obtained.

RCW = Revised Code of Washington; WAC = Washington Administrative Code; WDFW = Washington Department of Fish and Wildlife

3.6.1 Relevant Data Sources

The description of the affected environment provided in Section 3.6.2 was developed based on information, including general and specific wildlife surveys, provided by Horse Heaven Wind Farm, LLC (Applicant), as well as government and publicly available literature. No field studies were conducted specifically for the development of this Environmental Impact Statement (EIS). The Wildlife Area of Analysis is consistent with the analysis area used in Section 3.5, Vegetation, which encompasses approximately 202,289 acres and includes the Lease Boundary plus an additional 2-mile buffer. Habitat acreages were independently calculated for the EIS from spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021). These spatial data were used to assess each Project component independent of the others. A description of methods used to calculate affected habitats is provided in Section 3.5.

3.6.2 Affected Environment

3.6.2.1 Wildlife Habitat

Wildlife habitat in the Lease Boundary consists of a mix of natural (native shrub-steppe) and anthropogenically altered areas broadly characterized as native shrubland (e.g., dwarf shrub-steppe, sagebrush shrub-steppe, rabbitbrush), grassland that includes native steppe habitat, and agricultural/disturbed land (e.g., developed land). The Applicant mapped habitat types based on habitat descriptions provided in Washington Department of Fish and Wildlife (WDFW) (2009) and Johnson and O'Neil (2001). **Table 3.6-2** summarizes the composition of vegetation communities in the Project Lease Boundary. The distribution of these communities is depicted in **Figure 3.6-1.**

Table 3.6-2: Lease Boundary Habitat Composition

Habitat Type/Subtype	Lease Boundary (acres)	Wind Energy Micrositing Corridor (acres)	Solar Siting Areas (acres)	Substation Areas (acres)	BESS Areas (acres)	Compre-hensive Project (acres)[(d)]	Percentage of Habitat Type Available within Lease Boundary Located within the Comprehensive Project
Agriculture land	53,450.1	9,219.3	8,409.0	36.6	18.1	17,089.5	32.0%
Developed/disturbed	835.7	206.5	128.8	0	0	225.8	27.0%
Grassland							
Eastside (interior) grassland (Eastside Steppe)[(b)]	173.5	56.8	153.3	0	0	173.5	100%
Non-native grassland	1,635.5	656.5	451.4	1.6	0	1,099.6	67.2%
Planted grassland	4,338.3	934.1	519.4	0	0	1,402.4	32.3%
Unclassified grassland[(c)]	6,125.2	0	0	0	0	0	0%
Shrubland							
Dwarf shrub-steppe[(b)]	23.2	20.8	0	0	0	20.8	89.7%
Rabbitbrush shrubland	3,037.7	560.3	1,024.9	0	0	1,481.2	48.8%
Sagebrush shrub-steppe[(b)]	1,372.0	190.1	67.9	0	0	245.3	17.9%
Unclassified shrubland[(c)]	1,436.6	0	<0.1	0	0	<0.1	<0.1%
Total	**72,427.9**	**11,844.5**	**10,754.7**	**38.2**	**18.1**	**17,089.5**	

Sources: WDFW 2008; Horse Heaven Wind Farm, LLC 2021; Appendix K,[7] Horse Heaven Wind Farm, LLC 2022

Notes:

[(a)] Calculations were completed using the spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2022). Areas of overlap may occur between Project components (e.g., the Wind Energy Micrositing Corridor may extend into the Solar Siting Area).

[(b)] Priority Habitats in the State of Washington (WDFW 2008).

[(c)] Unclassified grassland and unclassified shrubland habitat subtypes include the areas mapped during surveys conducted in 2018 or using National Land Cover Database data that were not further classified into subtypes (e.g., planted grassland, sagebrush shrub-steppe) during the 2020 and 2021 field surveys or 2020 desktop analysis.

[(d)] Includes all Project components but accounts for areas of overlap.

BESS = battery energy storage system

[7] Tetra Tech. 2021a. 2021 Botany and Habitat Survey Report for Horse Heaven Wind Farm.

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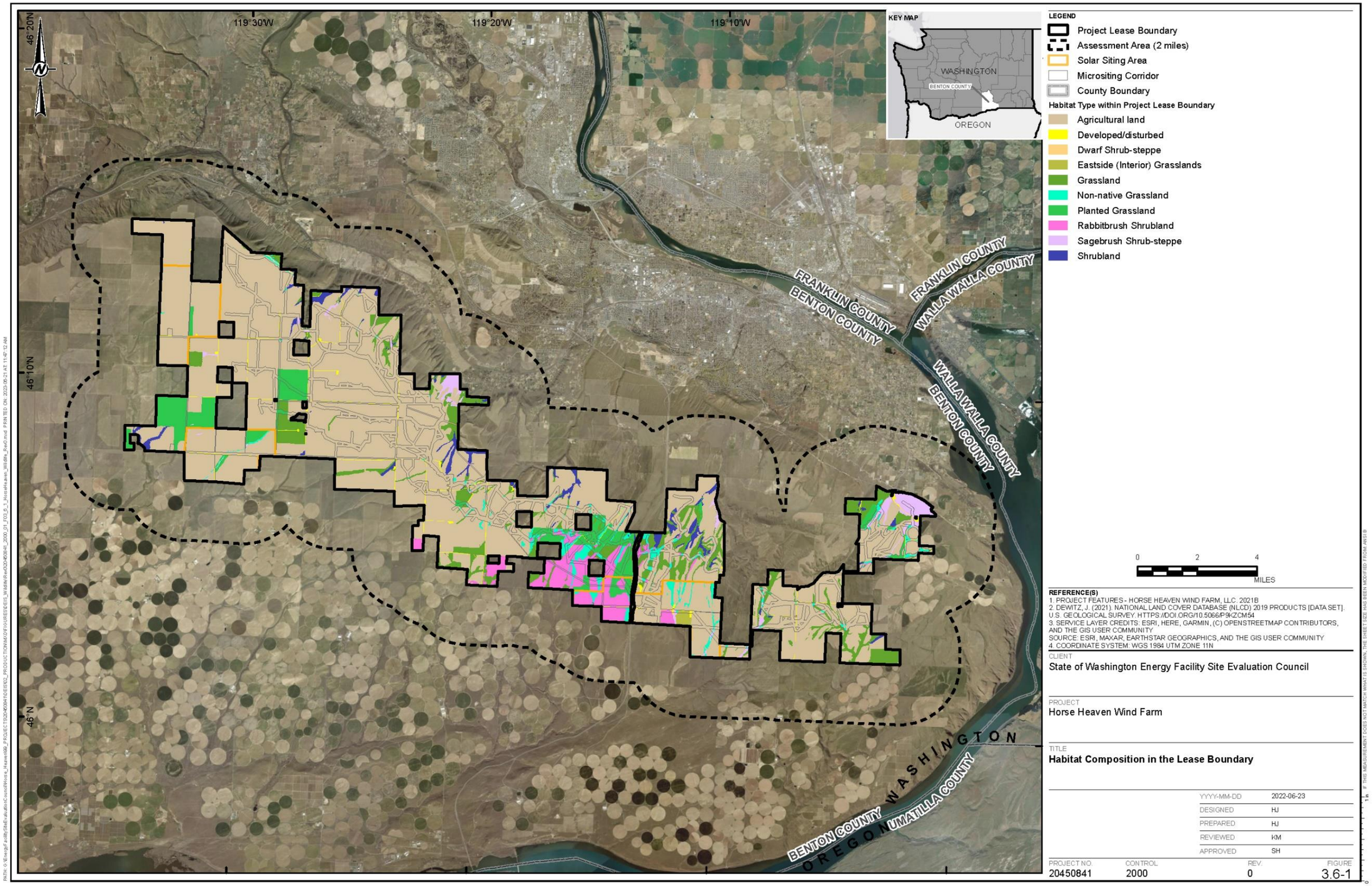

Figure 3.6-1: Habitat Composition in the Lease Boundary

Agricultural land accounts for the majority (approximately 74 percent) of the Lease Boundary and consists primarily of active and fallow wheat fields (Horse Heaven Wind Farm, LLC 2022). Agricultural lands are distributed throughout the Lease Boundary.

Developed and disturbed areas within the Lease Boundary are generally unvegetated and include roads, buildings, gravel pits, and other structures. Developed areas are distributed throughout the Lease Boundary and include linear features (e.g., roadways) or small polygons (developed areas less than 30 acres).

Grassland is the second most common habitat type in the Lease Boundary (approximately 17 percent) and includes Eastside (interior) grassland, non-native grasslands, planted grasslands, and unclassified grasslands. Eastside (interior) grassland is dominated by native perennial grasses, including bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg's bluegrass (*Poa secunda*), and Great Basin wildrye (*Leymus cinereus*), with a diverse herb layer (e.g., forbs such as flowering plants). This habitat type was mapped in small areas within the portion of the Micrositing Corridor that crosses Badger Canyon and within the East Solar Field (Tetra Tech 2021a). Non-native grasslands are areas dominated by non-native grass species, such as cereal rye (*Secale cereale*) and cheatgrass (*Bromus tectorum*), with lesser amounts of native species. This habitat type was more frequently mapped on the hilltop and draws in the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). Planted grasslands are areas that may be included in the U.S. Department of Agriculture Conservation Reserve Program (CRP) and are characterized as planted areas dominated by native or non-native grass species. Some of the planted grassland also included dense areas of rabbitbrush. Planted grasslands were predominantly mapped in the western (north of the proposed Webber Canyon substation) and central (north of the Bofer Canyon substation) portions of the Lease Boundary. Unclassified grasslands are areas mapped as herbaceous land; however, these were not further classified into one of the other grassland subtypes (Horse Heaven Wind Farm, LLC 2021). This classification is used for the portion of the Lease Boundary that lies outside the Wind Energy Micrositing Corridor and Solar Siting Areas, where field data are limited. This habitat type is frequently mapped along hills and draws but also occurs elsewhere in the Lease Boundary.

Shrubland habitat is described as areas where shrubs account for a minimum of 5 percent of vegetation cover. Shrubland is further refined into dwarf shrub-steppe, rabbitbrush shrubland, and sagebrush shrub-steppe, based on background and field data, or unclassified shrubland where further classification was not possible (Horse Heaven Wind Farm, LLC 2022). Dwarf shrub-steppe habitat was mapped in one polygon (23 acres) on a ridgetop in the northwest corner of the Lease Boundary. Rabbitbrush was reported to typically occur in areas understood to be former agricultural lands and could have been, or are, enrolled in the CRP. This habitat type was recorded in the central-eastern portion of the Lease Boundary near Prospect Canyon and Bofer Canyon (3,038 acres). Sagebrush shrub-steppe (1,372 acres) was mapped in the north-central and northeastern portions of the Lease Boundary, often associated with ridges and canyons. Unclassified shrubland (1,437 acres) includes shrublands that could not be further classified from background resources and are mapped as shrub/scrub by the National Land Cover Database.

One wetland, approximately 0.03 acres in size, has been recorded in Badger Canyon within the Lease Boundary. The wetland is in a draw approximately 240 feet west of the Micrositing Corridor. The National Hydrography Dataset and the Benton County Critical Area Ordinance fish and wildlife habitat conservation areas map identified 253 intermittent streams within the Lease Boundary (Ecology 2019; Benton County n.d.). No perennial streams are located within the Lease Boundary. The locations of watercourses in the Lease Boundary are discussed in Section 3.4, Water Resources.

Three of the habitat types documented in the Lease Boundary—sagebrush shrub-steppe, dwarf shrub-steppe,[8] and Eastside (interior) grassland[9]—are considered priority habitat by Washington State. These are described further in Section 3.5.2.

3.6.2.2 Wildlife

Wildlife presence and use of the Lease Boundary was assessed using background resources (e.g., databases maintained by Washington State) and field-based data collected by the Applicant.

General Wildlife

Amphibians

Three amphibian species—Woodhouse's toad (*Anaxyrus woodhousii*), Great Basin spadefoot (*Spea intermontana*), and Pacific treefrog (*Pseudacris regilla*)—have ranges that overlap the Lease Boundary and Wildlife Area of Analysis based on the Gap Analysis[10] Predicted Distribution mapping produced by the Washington NatureMapping Program (NatureMapping n.d.). Woodhouse's toads are associated with sagebrush, riparian areas, and prairie fields along the Snake and Columbia Rivers (NatureMapping n.d.). Woodhouse's toad is considered a species of greatest conservation need under the State Wildlife Action Plan (SWAP) (WDFW 2015). Great Basin spadefoots are associated with natural and anthropogenic permanent and temporary aquatic habitats such as ponds, ditches, dugouts, and vernal pools. Pacific treefrogs occur in most habitats with access to breeding sites, and the Lease Boundary is within the core habitat for this species (NatureMapping n.d.). The Applicant reports that suitable natural or anthropogenic breeding habitats are not available in the Lease Boundary, though wetland habitat has been recorded in Badger Canyon, approximately 790 feet (240 meters) west of the Micrositing Corridor, which may provide breeding habitat if wetted during the breeding season (spring to early summer).

Reptiles

Five snake and three lizard species have ranges that overlap with the Lease Boundary:

- Common garter snake (*Thamnophis sirtalis*)
- Gopher snake (*Pituophis catenifer*)
- Western racer (*Coluber constrictor*)
- Striped whipsnake (*Masticophis taeniatus*)
- Western rattlesnake (*Crotalus oreganus*)
- Sagebrush lizard (*Sceloporus graciosus*)
- Pygmy short-horned lizard (*Phrynosoma douglasii*)
- Side-blotched lizard (*Uta stansburiana*)

[8] Sagebrush shrub-steppe and dwarf shrub-steppe are part of the Shrub-steppe Priority Habitat in Washington State (WDFW 2008).

[9] The areas identified by the Applicant as Eastside (interior) grassland are considered Eastside Steppe Priority Habitat in Washington State (WDFW 2008).

[10] Gap analysis is a process of identifying areas of high conservation priority. It is designed to be a proactive approach to conservation. Gap relies on information from current landcover and terrestrial vertebrates to identify habitat types and species that are poorly represented on reserves (NatureMapping n.d.).

Two of these species, striped whipsnake and sagebrush lizard, are candidates for listing as endangered, threatened, or sensitive in Washington State and are discussed further in subsequent sections (WDFW 2023a). Side-blotched lizard and pygmy short-horned lizard are also listed as species of greatest conservation need under the SWAP (WDFW 2015).

In general, regionally occurring snake and reptile species exhibit a patchy distribution and are associated with shrubland, grassland, and canyons with access to suitable hibernacula (winter shelter used for hibernation) or hibernation habitat (e.g., loose soils for burrowing). In the Lease Boundary, it is expected that suitable reptile living habitat is available in native shrub and grassland areas, as well as planted grasslands. Reptiles may also occur in agricultural areas and along roadways if suitable basking and shelter habitat is available for thermoregulation.

Birds

A total of 66 bird species were reported in the Lease Boundary from field-based studies conducted by the Applicant, including 29 small bird species and 37 large bird species. The Applicant reports that the species recorded during surveys are typical of species occurring in regional arid shrub-steppe, agriculture, and grassland habitats. Horned lark (*Eremophila alpestris*) was the most common small bird species observed (5.3 observations per 100-meter [328-foot] plot per 10-minute survey) in both the eastern and western portions of the Lease Boundary and was most commonly observed in the fall and winter (Horse Heaven Windfarm, LLC 2022).

Snow goose (*Anser caerulescens*) was the most common large bird species observed overall (12.96 observations per 800-meter [2,625-foot] plot per 60-minute survey) and the species most commonly observed in the eastern portion of the Lease Boundary. Snow geese were most frequently observed during the winter. Sandhill crane (*Antigone canadensis*) was the most frequently observed large bird species in the western portion of the Lease Boundary and was most frequently documented during the spring (5.03 birds/800-m [2,625-foot] /60-min).

Thirteen species of raptor were recorded in the Lease Boundary, with the northern harrier (*Circus hudsonius*) most frequently observed and occurring most often in the fall (1.05 birds/800-m [2,625-foot] /60-min)). Golden eagle (*Aquila chrysaetos*) and bald eagle (*Haliaeetus leucocephalus*) have been recorded in the Lease Boundary. All bald eagle observations were recorded in the winter and spring.

Thirteen special status bird species were recorded in the Lease Boundary and are discussed below. One species, peregrine falcon (*Falco peregrinus*), is listed as a species of greatest conservation need under the SWAP (WDFW 2015) but is not considered a special status species, based on the definition provided below. Eleven special status species were recorded on the western side of the Lease Boundary, and eight in the eastern portion. Raptor nest surveys were completed by the Applicant from 2017 to 2019 and repeated in 2022 and 2023. Sixty-three nests were recorded within 2 miles (3.2 kilometers) of the Lease Boundary over 103 historical and current nest locations (Jansen 2023). Nesting habitat includes trees and areas along cliffs and rock outcrops.

Surveys conducted in 2017 documented 21 nests within 10 miles of the Lease Boundary, including 10 occupied nests within 2 miles of the Lease Boundary: two ferruginous hawk (*Buteo regalis*), four red-tailed hawk (*Buteo jamaicensis*), two great horned owl (*Bubo virginianus*), one Swainson's hawk (*Buteo swainsoni*), and one common raven (*Corvus corax*) (Appendix K,[11] Horse Heaven Windfarm, LLC 2022).

[11] Jansen, E. 2017. 2017 Raptor Nest Survey Report for the proposed Horse Heaven Wind Project, Benton County, Washington. Prepared for Horse Heaven Wind Farm, LLC.

A survey conducted in 2018 documented 36 nests within 10 miles of the Lease Boundary, 24 of which were occupied (Appendix K,[12] Horse Heaven Windfarm, LLC 2022). The 18 occupied nests recorded within 2 miles of the Lease Boundary included eight red-tailed hawk, six Swainson's hawk, three great horned owl, and one ferruginous hawk. Active bald eagle nests were reported beyond 2 miles of the Lease Boundary.

Surveys conducted in 2019[13] for the Four Mile Wind Project recorded 11 occupied nests, including six red-tailed hawk, two Swainson's hawk, two common raven, and one ferruginous hawk, within 2 miles of the Lease Boundary. Three of the nests (two raven and one Swainson's hawk) were located within the Lease Boundary. Six occupied bald eagle nests were recorded between 2 and 10 miles from the Lease Boundary. Surveys conducted for the Badger Canyon Wind Project documented 13 occupied nests, including five Swainson's hawk, three red-tailed hawk, three common raven, and two great horned owl nests (Appendix K,[14] Horse Heaven Windfarm, LLC 2022). Four of these nests are within the Lease Boundary. In addition, two active bald eagle nests were documented within 10 miles of the Lease Boundary.

Surveys conducted by the Applicant in 2022 recorded 61 nests, including active common raven, great horned owl, red-tailed hawk, and Swainson's hawk nests. The increase in the number of nests documented in 2022 is attributed to an increase in study area due to a larger Lease Boundary. The Applicant reports that nest density remained relatively consistent over the survey period (Horse Heaven Wind Farm, LLC 2022).

In 2023 the Applicant resurveyed historical ferruginous hawk nests within 2 miles of the Lease Boundary based on location data obtained from WDFW Priority Habitats and Species (PHS) database as well as nest data obtained during previous project-related raptor surveys (2017-2019, 2022). The survey covered a total of 103 locations, 63 of which contained nests (active and inactive). Fifty-five of the nests surveyed were within the Lease Boundary (Jansen 2023). The 2023 survey recorded 37 occupied/active nests, 1 occupied/inactive nest, 24 unoccupied nests, and 40 locations where the nests were gone (Jansen, 2023). **Table 3.6-3** summarizes raptor stick nests recorded by the 2022 Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2022; Jansen 2023).

Table 3.6-3: Raptor Stick Nest Survey Results[(a)]

Species[(b)]	2017	2018	2019	2022	2023
Common raven *(Corvus corax)*	1	1	5	16	12
Ferruginous hawk (*Buteo regalis*)	2	1	1	0	0
Great horned owl (*Bubo virginianus*)	2	2	3	3	3
Red-tailed hawk (*Buteo jamaicensis*)	4	8	14	11	8

[12] Jansen, E. W., S. R. Brown, and K. B. Hutchison. 2019. Avian Use and Raptor Nest Survey Report for the Horse Heaven Wind Project, Benton County, Washington. Prepared for Horse Heaven Wind Farm, LLC.

[13] Chatfield, A, T. Rintz, and E. Jansen. 2019. Results of the 2019 Raptor Nest Survey for the Four Mile Wind Project, Benton County, Washington.

[14] Chatfield, A., T. Rintz, and E. Jansen. Results of the 2019 Raptor Nest Survey for the Badger Canyon Wind Project, Benton County, Washington.

Table 3.6-3: Raptor Stick Nest Survey Results[(a)]

Species[(b)]	2017	2018	2019	2022	2023
Swainson's hawk (*Buteo swainsoni*)	1	6	7	4	7
Unoccupied	10	14	14	27	25
Total	**20**	**32**	**44**	**61**	**55**

Notes:
[(a)] Nests recorded within 2 miles of the Lease Boundary excluding bald eagle nests
[(b)] Nests were active during surveys except for those identified as "Unoccupied."

Mammals

Most of the habitat in the Lease Boundary has been historically modified by agricultural practices; however, it is expected that portions of the modified habitat and remnant patches of shrub and grassland habitat support small and medium-sized mammals. The Washington NatureMapping Program shows rodent (e.g., mice), insectivore (e.g., shrews), lagomorph (e.g., rabbits), and mustelid (e.g., weasel) species with ranges that overlap the Lease Boundary (NatureMapping n.d.). Medium and large carnivores are not expected to occur regionally, except for species adapted to modified habitat, such as coyotes (*Canis latrans*). Three species of ungulate—mule deer[15] (*Odocoileus hemionus*), white-tailed deer[16] (*O. virginianus*), and pronghorn antelope[17] (*Antilocapra americana*)—have ranges that overlap the Lease Boundary. The Lease Boundary is within the Columbia Plateau Mule Deer Management Zone and is characterized as "limited range" that is occasionally inhabited or supports small, scattered populations of mule deer (Horse Heaven Wind Farm, LLC 2022). The population has remained stable, although it is subject to hunting (Horse Heaven Wind Farm, LLC 2022). The Applicant has reported observations of ground squirrels, coyotes, mule deer, and pronghorn antelope in the Lease Boundary.

Bats

Twelve bat species are reported to occur regionally (NatureMapping n.d.), and the Applicant reported observations of eight species of bats in the Lease Boundary during field base surveys:

- California myotis (bat) (*Myotis californicus*)
- Canyon bat (*Parastrellus hesperus*)
- Little brown bat (*Myotis lucifugus*)
- Long-legged myotis (bat) (*Myotis volans*)
- Western long-eared bat (*Myotis evotis*)
- Big brown bat (*Eptesicus fuscus*)
- Hoary bat (*Lasiurus cinereus*)

[15] Habitat mapped as patches of core breeding habitat (NatureMapping n.d.)

[16] Habitat mapped as marginal habitat (NatureMapping n.d.)

[17] No predictive habitat mapping available (NatureMapping n.d.)

- Silver-haired bat (*Lasionycteris noctivagans*)

Silver-haired bat was the most common species detected, followed by hoary bat and big brown bat. Silver-haired and hoary bats are listed as species of greatest conservation need under Washington's SWAP (WDFW 2015). Bat activity recorded in the Lease Boundary peaked in September, corresponding to fall migration.

Bats were detected at an average activity rate of 0.63 to 1.41 bat passes per detector night (e.g., number of bat passes per detector night), which is lower than the average activity rate for the Rocky Mountain region (Appendix K,[18] Horse Heaven Wind Farm, LLC 2022).

Bats are expected to forage over the Lease Boundary during summer months and migrate over the area in spring and fall. Surveys for hibernacula have not been conducted; however, the Applicant reports that suitable hibernacula sites (e.g., farm outbuildings, caves) are not available in the Lease Boundary. No bat hibernacula, bat concentration areas, cliffs, caves, or talus have been reported in PHS data within 3 miles of the Four Mile Wind Project area or the Badger Canyon Wind Project area (Horse Heaven Wind Farm, LLC 2022). Most bat species recorded during the multi-year acoustic studies conducted in the Lease Boundary are migratory species that would not overwinter in the Lease Boundary.

Migration Routes and Habitat Connectivity

The Project would be located along the Pacific Flyway bird migration route. The Pacific Flyway extends from Alaska to Patagonia and connects summer and winter grounds along the western portion of the continent. In Washington State, the Pacific Flyway extends from the Pacific Ocean to the Rocky Mountain Range. The Applicant reports that cropland, shrubland, and grassland in the Lease Boundary provide suitable stopover habitat for raptors, songbirds, waterfowl, and shorebirds.

Bat migratory routes are poorly understood; however, bat acoustic data collected by the Applicant suggest that bats migrate over the Lease Boundary during spring and fall. Silver-haired bat and hoary bat were the two species most frequently detected during acoustic surveys. Silver-haired bats are recorded in Washington State from April through November, while hoary bats are typically recorded in Washington State from June through October (Cryan 2003).

Disturbance associated with the Project would not overlap big game migration routes (Horse Heaven Wind Farm, LLC 2022), though the Lease Boundary overlaps areas modeled as wildlife movement corridors (WHCWG 2013). The Washington Wildlife Habitat Connectivity Working Group (WHCWG) developed a statewide habitat connectivity tool that models potential wildlife movement corridors in the landscape. Corridors were modeled based on an aggregate of habitat data for selected focal species. The model considers parameters such as habitat (e.g., habitat concentration area [HCA]), landscape integrity (e.g., areas with limited human impact), and existing barriers to wildlife movement. These factors were considered to rate areas that facilitate wildlife movement. These areas are rated as very high (areas characterized as low-cost for wildlife movement) to low (areas characterized as a high-cost for wildlife movement) by the WHCWG (2013). One modeled movement corridor rated as medium to high runs in an east–west orientation along the northern perimeter of the Lease Boundary (shown in yellow and orange in **Figure 3.6-2**), and another rated as medium to high runs in a north–

[18] Hays, Q., S. Brown, and A. Chatfield. 2018. Bat Activity Study for the Badger Canyon Wind Project, Benton County, Washington. Prepared for Four Mile MW LLC

south orientation parallel to Highway 395 (shown in yellow and orange in **Figure 3.6-2**). The north–south corridor connects the Hanford Site and Rattlesnake Hills to an HCA in Oregon.

Pronghorn antelope were reintroduced onto the Yakama Reservation in 2011 and the population has been monitored by the Yakama Nation Wildlife Program and WDFW via aerial and ground surveys, and GPS collars (Fidorra et al 2019, Fidorra et al 2021, Yakama Nation 2023). Results of survey and monitoring program show pronghorn antelope using the Horse Heaven Hills during all seasons. Movements in the Lease Boundary tend to be concentrated along the Horse Heaven foothills south of the Tri-cities, west of I-82, and north of areas of irrigated crops (Horse Heaven Wind Farm, LLC 2023).

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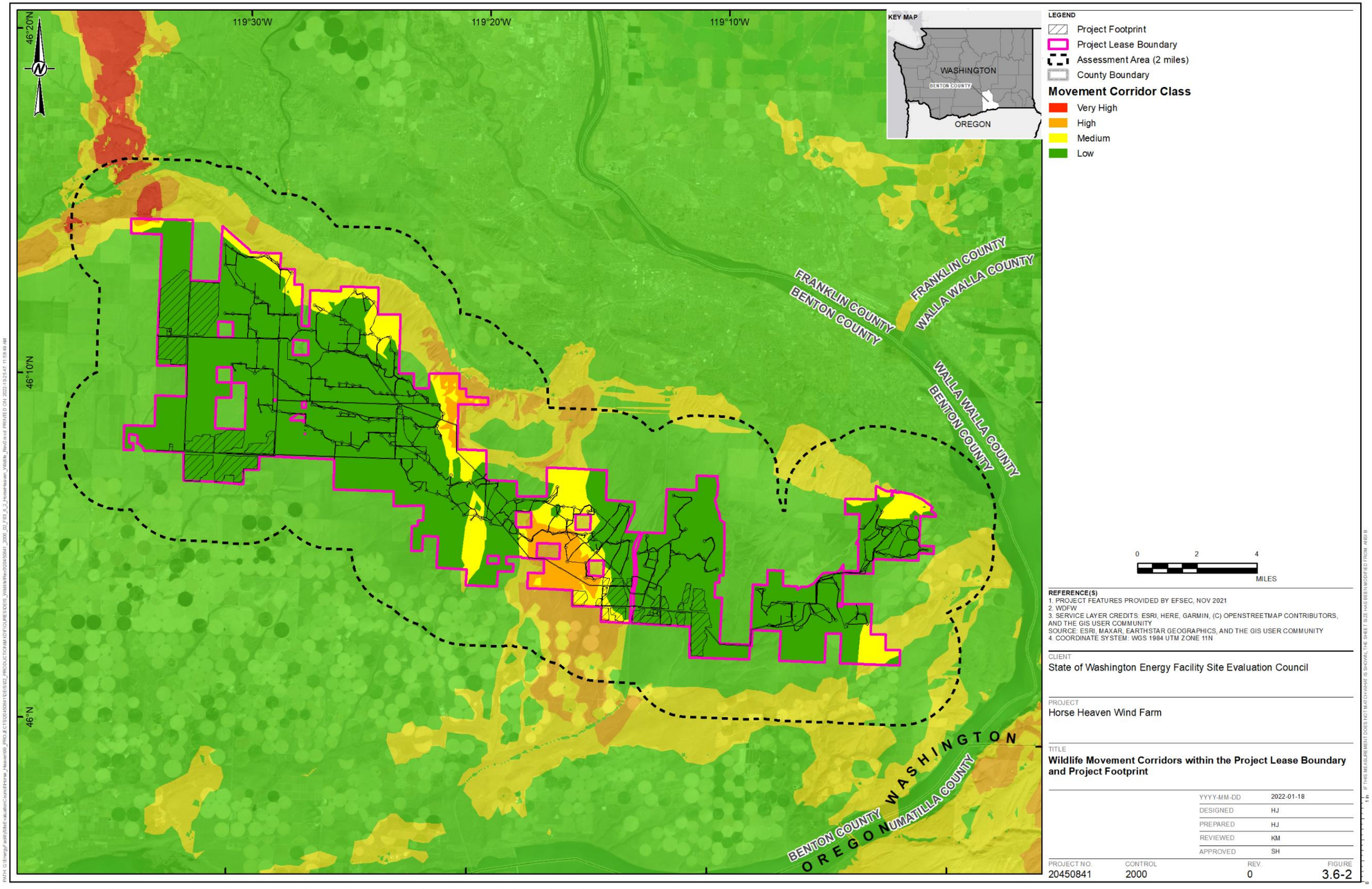

Figure 3.6-2: Wildlife Movement Corridors within the Project Lease Boundary and Project Footprint

Special Status Wildlife Species

For the purpose of this EIS, “special status wildlife species” are defined as in the 2022 ASC—i.e., as one or more of the following:

- Listed under the federal Endangered Species Act
- Listed by Washington State as endangered, threatened, sensitive, or candidate species
- Listed by WDFW as priority species[19]
- An eagle species

In addition to species classified as special status using the definition above, this section also discusses pronghorn antelope, which is understood to be of specific importance to the Yakama Nation and is part of a regional re-introduction program. While discussed in this section, pronghorn antelope is not considered a special status species.

The Applicant has identified 20 special status species with potential to occur in the Lease Boundary. No species listed, or candidates for listing, under the federal Endangered Species Act are predicted to occur in the Lease Boundary. Data on special status species presence were collected from background resources (e.g., WDFW PHS data) and field-based data collected by the Applicant. It is noted that data collected and maintained by WDFW may not include private property; therefore, the lack of PHS data on species presence does not indicate species’ absence. **Table 3.6-4** summarizes the 20 special status species with potential to occur within the Lease Boundary; each is described in the text following **Table 3.6-4**.

[19] WDFW defines Washington priority species as those “that are State listed as Endangered, Threatened, Sensitive, and Candidate Species; vulnerable animal groups; and vulnerable species of recreational, commercial, or tribal importance” (WDFW 2022).

Table 3.6-4: Summary of Special Status Species with Potential to Occur in the Project Lease Boundary

Species	Habitat	Abundance	Abundance in Washington State	Short-term Trends	Long-term Trends	Threats
Sagebrush lizard *Sceloporus graciosus*	▪ Shrublands ▪ Grasslands ▪ Deserts ▪ Open coniferous forests ▪ Sand dunes	100,000 Individuals (globally)	NA	Stable or declining	Unknown	▪ Habitat loss ▪ Fragmentation of habitat ▪ Degradation from non-native plant
Striped whipsnake *Coluber taeniatus*	▪ Shrub-steppe ▪ Hibernacula sites in basalt outcrops	>100,000 Individuals (globally)	NA	Stable or declining	Variable	▪ Habitat loss ▪ Road mortality
American white pelican *Pelecanus erythrorhynchos*	▪ Islands in freshwater ▪ Migration inland, along rivers	>100,000 Individuals, (globally)	NA	Increasing	Declining	▪ Human encroachment on breeding sites ▪ Degradation of aquatic foraging habitat ▪ Pesticide use
Bald eagle *Haliaeetus leucocephalus*	▪ Proximity to foraging habitat (large fresh water and marine systems)	100,000 Individuals (North America)	3,000 to 4,000 Individuals	Stable or increasing	Stable or declining	▪ Disturbance ▪ Habitat loss ▪ Biocide contamination ▪ Food supply ▪ Illegal hunting
Burrowing owl *Athene cunicularia*	▪ Open grassland ▪ Steppe ▪ Desert	>100,000 Individuals (globally)	NA	Declining	Declining	▪ Decline in denning locations ▪ Habitat loss

Table 3.6-4: Summary of Special Status Species with Potential to Occur in the Project Lease Boundary

Species	Habitat	Abundance	Abundance in Washington State	Short-term Trends	Long-term Trends	Threats
Ferruginous hawk *Buteo regalis*	▪ Grassland ▪ Sagebrush ▪ Canyons	<83,000 Individuals (U.S.)	NA	Declining	Declining	▪ Mortalities from collisions with wind turbines, transmission lines roads and highways ▪ Habitat loss ▪ Reduction of prey abundance ▪ Pesticides/contaminants ▪ Climate change ▪ Nest disturbance
Golden eagle *Aquila chrysaetos*	▪ Shrubland ▪ Grassland	<100,000 Individuals (North America)	NA	Stable to declining	Stable	▪ Mortality from collisions with powerlines and wind turbines ▪ Consumption of poisons ▪ Habitat degradation ▪ Disturbance of nest sites
Great blue heron *Ardea herodias*	▪ Lakeshore, coastal water, streams ▪ Pasture, fields, fallow areas	124,500 (*Herodias* subspecies North America)	NA	Stable to increasing	Stable to increasing	▪ Contamination of food sources ▪ Alteration of foraging habitat ▪ Disturbance of nesting sites

Table 3.6-4: Summary of Special Status Species with Potential to Occur in the Project Lease Boundary

Species	Habitat	Abundance	Abundance in Washington State	Short-term Trends	Long-term Trends	Threats
Loggerhead shrike *Lanius ludovicianus*	▪ Shrubland ▪ Grassland	6,000,000 Individuals (globally)	NA	Declining	Declining	▪ Pesticide use ▪ Decline in food availability ▪ Loss and degradation of breeding habitat
Prairie falcon *Falco mexicanus*	▪ Arid environments ▪ Coastal (overwinter)	<9,000 Individuals (North America)	200 Individuals	Stable	NA	▪ Disturbance ▪ Habitat loss and degradation ▪ Collisions with infrastructure
Ring-necked pheasant *Phasianus colchicus*	▪ Open environments ▪ Coastal areas	NA	NA	Stable	Declining	▪ Hunting ▪ Food contamination ▪ Mortality from collision with machinery ▪ Habitat degradation
Sagebrush sparrow *Artemisiospiza nevadensis*	▪ Sagebrush ▪ Bunch grass shrub-steppe	NA	NA	Stable to declining	Stable to declining	▪ Habitat loss and degradation ▪ Changes in fire regimes
Sage thrasher *Oreoscoptes montanus*	▪ Shrub-steppe	>1,000,000 Individuals (globally)	NA	Declining	Declining	▪ Habitat loss and degradation
Sandhill crane *Antigone canadensis*	▪ Sunnyside-Snake River Wildlife Area ▪ Marsh, wetland, and bog habitat ▪ Wet meadows ▪ Grain fields	8,000 Individuals (Central Valley population)	8,000 Individuals (Central Valley population)	Stable	NA	▪ Habitat loss ▪ Collisions with infrastructure ▪ Nest predation

Table 3.6-4: Summary of Special Status Species with Potential to Occur in the Project Lease Boundary

Species	Habitat	Abundance	Abundance in Washington State	Short-term Trends	Long-term Trends	Threats
Tundra swan *Cygnus columbianus*	▪ Freshwater system ▪ Marine systems ▪ Fields	<170,000 Individuals (North America)	NA	Stable	NA	▪ Hunting on winter grounds ▪ Consumption of spent lead shots and fishing leads
Vaux's swift *Chaetura vauxi*	▪ Access to roost sites (trees, snags, chimneys)	<300,000 Individuals (North America)	NA	Declining	Declining	▪ Loss of old trees and snags ▪ Change in chimney availability ▪ Pesticides
Townsend's big-eared bat *Corynorhinus townsendii*	▪ Coniferous forests ▪ Riparian habitat ▪ Shrub-steppe ▪ Open fields	<100,000 Individuals (globally)	NA	Stable to declining	Declining	▪ Disturbance and destruction of hibernacula and maternity colonies ▪ Loss of roosting and foraging habitat
Townsend's ground squirrel *Urocitellus townsendii*	▪ Shrub-steppe ▪ Grasslands ▪ Pastures ▪ Orchards ▪ Highway margin, and canal banks	NA	NA	Stable to Declining	Declining	▪ Habitat loss and degradation
Black-tailed jackrabbit *Lepus californicus*	▪ Sagebrush ▪ Rabbitbrush ▪ Grassland	NA	NA	Declining	Stable	▪ Habitat loss ▪ Mortality from persecution ▪ Disease
White-tailed jackrabbit *Lepus townsendii*	▪ Open bunchgrass habitat ▪ Sagebrush	<1,000,000 Individuals (globally)	NA	NA	NA	▪ Loss and degradation of habitat

Table 3.6-4: Summary of Special Status Species with Potential to Occur in the Project Lease Boundary

Species	Habitat	Abundance	Abundance in Washington State	Short-term Trends	Long-term Trends	Threats
Pronghorn antelope *Antilocapra americana*	▪ Grassland ▪ Shrubland	NA	<300 Individuals	Increasing	NA	▪ Previously extirpated from Washington State

Notes:
Source: Citations for sources of information provided under species-specific sections
NA = Not available

Sagebrush Lizard

Sagebrush lizard (*Sceloporus graciosus*) occurs across the arid areas of the central western United States, extending northward into Washington State. In Washington State, the species occurs in semi-desert and steppe areas throughout the Columbia Basin, including Benton County (NatureMapping n.d.). The species is associated with shrublands, grasslands, deserts, open coniferous forests, and sand dunes where open ground with low-lying shrubs is available. Suitable habitat generally has limited grass and leaf cover. The species has a small home range size of approximately 1.2 acres (0.5 hectares) (NatureServe 2021).

Local population estimates and trends are not available; however, NatureServe (2021) estimates the global population to be approximately 100,000 individuals. Short-term trends may be stable or decreasing, and long-term trends are unknown (WDFW 2023b). Threats to the species include habitat loss and fragmentation (e.g., roadways), as well as habitat degradation from non-native plant species, such as cheatgrass, and loss of sagebrush (WDFW 2023b). The species is a candidate for state listing and is a state priority species.

Shrubland, including sagebrush and rabbitbrush habitat, within the Lease Boundary, is expected to provide suitable habitat for this species. Washington's NatureMapping Program reports suitable core sagebrush lizard habitat along the northern and southern perimeter of the Lease Boundary (NatureMapping n.d.). Sagebrush lizard has not been documented within the Lease Boundary, though it is noted that species-specific surveys have not been conducted (WDFW n.d.[a]; Horse Heaven Wind Farm, LLC 2022).

Striped Whipsnake

Striped whipsnake (*Coluber taeniatus*) occurs across the western and southwestern United States, from Washington State south to California and east to Texas. The desert striped whipsnake subspecies (*C. t. taeniatus*) occurs in Washington State, where it is verified as occurring in two locations in Grant County (WDFW 2023c). The species is a shrub-steppe obligate, occurring in areas where it can access suitable hibernacula sites in basalt outcrops (WDFW 2023c). Movements between hibernacula and summer range are estimated to average 2,950 feet (900 meters) for females and 4,920 feet (1,500 meters) for males (NatureServe 2021).

Local population estimates and trends are not available; however, NatureServe (2021) estimates that the global population exceeds 100,000 individuals. Population trends are expected to be variable across the species' range and are broadly considered to be stable or declining globally (NatureServe 2021). Striped whipsnake has likely always been uncommon in Washington State, which is at the northern end of its range. Striped whipsnake is a candidate for listing in Washington State and is a state priority species in Washington State due to conversion of shrub-steppe habitat to agricultural or land development purposes and destruction of hibernacula sites (WNHP et al. 2009).

Striped whipsnake has historically been recorded in Benton County, and core habitat occurs along the northern perimeter of the Lease Boundary (NatureMapping n.d.). It is expected that shrub-steppe habitat in the Lease Boundary provides suitable summer habitat for the species; however, the Applicant reports that the area does not contain basalt outcrops, which are required for hibernacula. While the species has historically been reported in Benton County, PHS data do not report occurrences of the species within 2 miles (3.2 kilometers) of the Lease Boundary **(Figure 3.6-3**), and striped whipsnake was not recorded within the Lease Boundary during field surveys, though it is noted that species-specific surveys have not been conducted (WDFW 2023c; Horse Heaven Wind Farm, LLC 2022).

American White Pelican

American white pelicans (*Pelecanus erythrorhynchos*) occur across most of North America, breeding in Canada, the north-central United States, and western United States and overwintering in the southern United States and Central America. In Washington State, American white pelicans breed on Badger Island in the Columbia River (WDFW 2023d) and migrate over the eastern portion of the state (Knopf and Evans 2020). Breeding occurs on islands in freshwater systems protected from humans and predation (WDFW 2023d). Migration occurs inland, often along rivers, with access to aquatic stopover areas (Knopf and Evans 2020).

Local population estimates and trends are not available; however, NatureServe (2021) estimates that the global population exceeds 100,000 individuals. WDFW (2015) reports that approximately 1,000 pairs of American white pelican breed at Badger Island in the Columbia River. American white pelicans have undergone historical population declines, but populations appear to have increased since 1980 (Knopf and Evans 2020). The species is vulnerable to human encroachment on breeding sites, changes and degradation of aquatic foraging habitat, and pesticide use and continues to exhibit effects from hunting in the past (Knopf and Evans 2020). The species is state listed as sensitive and is a state priority species.

Suitable nesting and foraging habitat does not occur within the Lease Boundary; however, American white pelicans were recorded during field surveys flying over the Lease Boundary when moving to and from the Badger Island breeding colony and during migration. The Badger Island breeding colony is located approximately 4 miles (6.5 kilometers) east of the Lease Boundary and is one of the largest breeding colonies in the United States. The Applicant recorded 887 birds (76 groups) flying over the Lease Boundary during field surveys (Horse Heaven Wind Farm, LLC 2022). Most of the observations were recorded during the summer (724 individuals), followed by fall (111 individuals) and spring (52 individuals).

Bald Eagle

Bald eagles occur across most of North America and breed in Canada, the western and southeastern United States, and patches of central and east coastal United States and are year-round residents in most of Washington State. Breeding typically occurs in trees within 1.2 miles of water, though breeding locations and substrate can vary. Bald eagles may congregate outside of the breeding period in areas with access to foraging habitat (e.g., large rivers) and roosting sites (Buehler 2020).

Local population estimates and trends are not available; however, Buehler (2020) reports that the North American population may be as high as 100,000 individuals, and WDFW (2015) reports that approximately 3,000 to 4,000 individuals occur in Washington State. Bald eagle populations have increased since 1972 due to bans of dichlorodiphenyltrichloroethane (DDT), and populations in Washington State may be approaching carrying capacity (Buehler 2020). Threats to bald eagle include disturbance, habitat loss, biocide contamination, food supply, and illegal hunting (NatureServe 2021). Bald eagle is protected under the federal Bald and Golden Eagle Protection Act.

Bald eagles are year-round residents in Benton County and nest along the Columbia River (Horse Heaven Wind Farm, LLC 2022). Bald eagles were observed flying over the Lease Boundary during field surveys, including six observations over the western portion of the Lease Boundary and 10 over the eastern portion of the Lease Boundary. In the west, the observations were grouped around Bing and Coyote Canyons. Bald eagles were observed predominantly in the winter and spring months (Horse Heaven Wind Farm, LLC 2022). Nine bald eagle nests were recorded during field surveys, none of which were within the Lease Boundary (**Table 3.6-5**).

Table 3.6-5: Bald Eagle Nests Recorded within 10 Miles of the Lease Boundary

Nest Location	Nest Status[a,b]	Distance to Nearest Proposed Turbine (miles)
Prosser	▪ Not Surveyed 2017 ▪ Not Surveyed 2018 ▪ Occupied/Active 2019 ▪ Occupied/Active 2022 ▪ Occupied/Active 2023	10.7
Yakima River Mouth	▪ Occupied/Active 2017 ▪ Occupied/Active 2018 ▪ Inactive 2019 ▪ Occupied/Active 2022 ▪ Occupied/Active 2023	8.1
Port of Pasco	▪ Not Surveyed 2017 ▪ Not Surveyed 2018 ▪ Occupied/Active 2019 ▪ Occupied/Active 2022 ▪ Occupied/Active 2023	6.5
Peavine Island	▪ Not Surveyed 2017 ▪ Not Surveyed 2018 ▪ Occupied/Active 2019 ▪ Occupied/Active 2022 ▪ Occupied/Active 2023	3.7
Peavine Island North	▪ Occupied/Active 2023	3.9
McNary NWR	▪ Not Surveyed 2017 ▪ Not Surveyed 2018 ▪ Occupied/Active 2019 ▪ Occupied/Active 2022 ▪ Occupied/Active 2023	7.8
Foundation Island[c]	▪ Occupied/Active 2023	4.4
Burbank	▪ Not Surveyed 2017 ▪ Not Surveyed 2018 ▪ Not Located 2019 ▪ Occupied/Inactive 2022 ▪ Occupied/Active 2023	7.2
Sand Station	▪ Not Surveyed 2017 ▪ Not Surveyed 2018 ▪ Occupied/Active 2019 ▪ Unoccupied/Inactive 2022 ▪ Gone 2023	9.2

Source: Horse Heaven Wind Farm, LLC 2022

Notes:

[a] Only includes years the nest location was surveyed

[b] Occupied = Nest contains an egg or chick, or an adult was observed on or near the nest; Unoccupied = eagles (egg, chick, or adult), were not observed at the nest; Active = the nest contained eggs, chicks, or other evidence that it was used for breeding; Inactive = the nest did not contain an egg, chick, or evidence of breeding

[c] New nest identified in 2023

NWR = National Wildlife Refuge

Burrowing Owl

Burrowing owls (*Athene cunicularia*) occur across central and southern United States. In Washington State, burrowing owl breeding habitat occurs in arid areas in the southern-central part of the state. Benton County is located in the center of the mapped core habitat for this species in Washington State (NatureMapping n.d.). Suitable breeding habitat includes open grassland, steppe, and desert ecosystems, where the species typically occurs in gently sloped areas with sparse vegetation (Poulin et al. 2020). Burrowing owls can occur in anthropogenically modified landscapes such as agricultural fields, and roadway rights-of-way. Abandoned mammal burrows are used for nesting and are an important feature in suitable habitat.

National and regional populations are poorly understood, and likely vary across the species' range. In Washington State, populations are estimated to have declined by approximately 1.5 percent annually between 1968 and 2005 (Poulin et al. 2020). The species is considered uncommon outside of Benton, Franklin, Grant, and Adams Counties (WDFW 2023e). Risks to burrowing owls in Washington State are understood to include decline in small mammals, resulting in a reduction of denning locations and loss of habitat from alteration of landscape to agriculture and developed areas (WDFW 2023e). Burrowing owl is a candidate species for state listing and is a state priority species.

The Lease Boundary is classified as core habitat for burrowing owls, and PHS data report 32 burrowing owl nests or burrows within 2 miles of the Lease Boundary (**Figure 3.6-3**), including four within the Lease Boundary (NatureMapping n.d.). Suitable habitat for burrowing owls may exist in grasslands, shrublands, and fallow agricultural fields, and along roadways. Burrowing owls were not recorded in the Lease Boundary during the field surveys conducted by the Applicant; however, species-specific surveys were not conducted.

Ferruginous Hawk

Ferruginous hawk range extends across open portions of western North America, extending into southeastern Washington State. Benton County is located in core habitat for this species in Washington State and, along with Franklin County, supports the majority of nesting territories (Hayes and Watson 2021; NatureMapping n.d.). Habitat generally consists of grassland and sagebrush ecosystems, as well as canyons with cliffs and rock outcrops that provide nesting sites (Ng et al. 2020). In Washington State, nests are typically placed at lower elevations and heights less than 33 feet meter(Ng et al. 2020). Preferred nesting locations include rock outcrops and juniper trees with southern and western exposures (Ng et al. 2020). Additionally, nesting sites require access to prey sources that include small mammals, such as ground squirrels. Ferruginous hawk core habitat is estimated to extend 2 miles (3.2 kilometers) from the nest site, and the home range is estimated to encompass approximately 6 miles (10 kilometers) from the nest site (Ritter 2022; Watson 2022a). These distances were derived from telemetry data collected in south-central and north-central Washington State (Watson 2022a).

Ng et al. (2020) report that the North American population was estimated to be approximately 5,842 to 11,330 individuals in the early 1990s. More recent estimates, based on breeding bird surveys, estimated the North American population to be upwards of approximately 83,000 individuals, but the species has been in decline within Washington State. Statewide ferruginous hawk territory occupancy trends are presented in Hayes and Watson (2021), who report that the breeding population in Washington State has shown sustained declines: "Between 1974 and 2016, there have been significant declines in nesting territory occupancy, nest success, and productivity." Specific to Benton County, which is part of the Washington State core breeding range for this species, Hayes and Watson (2021) report substantial declines in the percentage of nesting territories supporting breeding pairs.

Threats to ferruginous hawk include mortalities from collisions with wind turbines, transmission lines, roads and highways, loss of foraging habitat as native habitats are converted to agricultural land or developed, reduction of prey abundance, indirect mortality from pesticides/contaminants, climate change, and nest disturbance (Ng et al. 2020; Hayes and Watson 2021). It is estimated that more than half of shrub-steppe habitat, which supports ferruginous hawk foraging habitat, in Washington State has been modified by human disturbance (e.g. converted to crops, urban development) with a patchwork of fragmented habitat remaining. Specific to Benton County, recent wildfires have further contributed to the loss of shrub-steppe habitat as newly burnt areas are re-populated with invasive cheatgrass. Ferruginous hawks are state listed as endangered and are a state priority species, partially due to the continued contraction in the number of breeding pairs statewide, as well as the lack of improvement in habitat conditions and primary threats to the species.

Shrub-steppe and grassland habitat in the Lease Boundary where small mammals occur may provide suitable ferruginous hawk foraging habitat, while canyons provide suitable nesting substrate. Portions of the Lease Boundary are classified as core habitat for ferruginous hawk (NatureMapping n.d.). PHS data show 56 ferruginous hawk nests within 2 miles of the Lease Boundary, including 10 within the Lease Boundary. Known ferruginous hawk nest locations (both active and inactive) are generally concentrated northwest of the Lease Boundary, between Interstate 82 and the northwestern edge of the Lease Boundary, near mapped ground squirrel concentration areas. Three nest sites are recorded along the southern edge of the Lease Boundary, and east of Interstate 82.

The Applicant reported that 56 historic and two newly documented ferruginous hawk nests occur within 2 miles of the Lease Boundary. These nest locations were surveyed at least once during surveys conducted between 2017 and 2019, and 2022 and 2023, including two that were occupied at least once by the ferruginous hawk during the study period (Appendix K,[20] Horse Heaven Wind Farm, LLC 2022). Nests were predominantly recorded on the ground, rock outcrops, and cliffs along canyons, including Webber, Sheep, and Badger Canyon (Horse Heaven Wind Farm, LLC 2022) The Applicant reports that the 58 nests represent 18 territories; although the majority of the nests are in sixteen historical ferruginous hawk territories, as defined by WDFW (Ritter 2022; Watson 2022b). Based on field data collected by the Applicant (years 2017 to 2019, 2022, 2023), the Applicant reported that, by 2022, half of the 58 surveyed ferruginous hawk nest (56 from PHS data, 1 from a previous unrelated survey, and 1 found during the Applicant's 2022 survey) were gone (30 nests; 52 percent) while another 22 nests (38 percent) were unoccupied and six (10 percent) were occupied by another species. The Applicant also reports that, of the nests remaining in 2022, 15 (54 percent) were considered poor condition, six (21 percent) were in fair condition, and seven (25 percent) were in good condition. Two of the 58 nesting sites surveyed were occupied during at least one survey, but both sites were no longer occupied by ferruginous hawks by 2022. The Applicant reports that ferruginous hawk nest occupancy, representing the number of nests occupied by ferruginous hawk compared to the numbers of available nests calculated over the 5-year survey period, was approximately 4.4 percent (peak nest occupancy was recorded in 2017 [20 percent] and lowest in 2022 and 2023 [0 percent], Jansen et al. 2023). Territory occupancy has declined statewide by more than 40 percent (Hayes and Watson 2021). Ferruginous hawk observations were recorded four times during point count surveys near the nest, with activity recorded during field surveys, which the Applicant reports as low nest occupancy (Appendix K,[14] Horse Heaven Wind Farm, LLC 2022).

[20] Jansen, E. 2022. Patterns of Ferruginous Hawk (*Buteo regalis*) Nesting in the Horse Heaven Hills, Benton County, Washington, 2017-2019, 2022. Prepared for Horse Heaven Wind Farm, LLC.

Golden Eagle

Golden eagle (*Aquila chrysaetos*) range extends across North America. In Washington State, core breeding habitat is generally in arid environments located in the central portion of the state. Suitable habitat is variable but includes shrubland and grassland. Nesting may occur in trees or on cliffs.

North American populations are estimated at up to 100,000 individuals, with approximately 190 breeding pairs in Washington State (Katzner et al. 2020). Western North American populations appear to be stable or in slight decline. Historically, golden eagles were threatened by eradication campaigns; current threats include mortality from collisions with powerlines and wind turbines; consumption of poisons (e.g., rodenticide); habitat change, including reduction of prey items; and disturbance of nest sites (Katzner et al. 2020). Golden eagle is a candidate species for state listing, a state priority species, and protected under the Bald and Golden Eagle Protection Act.

Open grassland, shrubland, and agricultural areas in the Lease Boundary provide suitable foraging habitat for golden eagles. Six golden eagles were recorded in the western portion of the Lease Boundary, and one was documented in the east during field surveys conducted by the Applicant (Horse Heaven Wind Farm, LLC 2021a). Most observations were documented during the fall. No golden eagle nests were recorded in or within 10 miles of the Lease Boundary, though suitable nesting habitat is available along cliffs associated with the Columbia River (Horse Heaven Wind Farm, LLC 2022).

Great Blue Heron

Great blue heron (*Ardea herodias*) range extends across most of North America and Central America. In Washington State, the species' breeding range generally extends along the coast and the central-eastern part of the state, with the *herodias* subspecies occurring in eastern Washington. Great blue heron is adaptable and uses a variety of habitat for foraging, including aquatic (e.g., lakeshore, coastal water, streams) and upland (e.g., pasture, fields, fallow areas) areas (Vennesland and Butler 2020). Nesting occurs in trees, in bushes, on the ground, or on artificial structures, typically near water (Vennesland and Butler 2020).

The *herodias* subspecies population is estimated at 124,500 individuals, though local population estimates are not available (Vennesland and Butler 2020). Long- and short-term trends suggest that great blue heron populations are stable or increasing; however, the populations were historically impacted by hunting (NatureServe 2021). Threats to the species include contamination of food sources, alteration of foraging habitat (e.g., draining wetlands), and disturbance of nesting sites. Great blue heron is a state priority species.

The Lease Boundary is not expected to provide suitable nesting habitat for great blue heron; however, grassland, agricultural fields, and shrubland may provide foraging habitat (Horse Heaven Wind Farm, LLC 2022). Nesting may occur along adjacent watercourses, such as the Yakima River (Horse Heaven Wind Farm, LLC 2022). The Lease Boundary overlaps areas of core breeding habitat (NatureMapping n.d.). One great blue heron was recorded flying over grassland area of the Lease Boundary during the winter (Horse Heaven Wind Farm, LLC 2022).

Loggerhead Shrike

Loggerhead shrike (*Lanius ludovicianus*) range extends across most of the United States, including portions of southern Canada. In Washington State, core breeding habitat for loggerhead shrike is predominantly located in the central portion of the state along the Columbia Basin (NatureMapping n.d.). Breeding habitat generally consists of undisturbed patches of shrub-steppe and grass areas, though abundance appears to be correlated

with active pasture lands in portions of the species' range, suggesting that access to perches and short grass may be important (Yosef 2020). Loggerhead shrike is a candidate for state listing and is a state priority species.

The global population of loggerhead shrike is estimated to be six million individuals; however, local population estimates are not available (NatureServe 2021). Species declines have been noted in most states, and current population decreases are estimated at 3.5 to 5 percent per year (Yosef 2020). Threats to the species include pesticide use, decline in food (e.g., invertebrate) availability, and loss and degradation of breeding habitat through loss of sagebrush steppe habitat (Yosef 2020; NatureServe 2021).

Shrubland, abandoned homesteads, and hedgerows in the Lease Boundary provide suitable nesting habitat for loggerhead shrike (Horse Heaven Wind Farm, LLC 2022). Shrubland and agricultural fields provide foraging habitat for the species (Horse Heaven Wind Farm, LLC 2022). The Lease Boundary overlaps core loggerhead shrike breeding habitat. PHS data report seven loggerhead shrike occurrences within 2 miles of the Lease Boundary (**Figure 3.6-3**), three of which are nest sites. Five of these occurrences are reported within the Lease Boundary; two of these are nest locations. A loggerhead shrike nest was recorded within the Lease Boundary in 1990, and a second was recorded approximately 350 feet from the Lease Boundary in 1987 (WDFW, n.d.). One loggerhead shrike was recorded during summer field surveys in the eastern portion of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). The Applicant reports that this bird may have been nesting when observed (Horse Heaven Wind Farm, LLC 2022).

Prairie Falcon

Prairie falcon (*Falco mexicanus*) range extends across most of western United States and northern Mexico. In Washington State, the species is a year-round resident in the central and eastern portions of the state and may overwinter in coastal areas (Steenhof 2020). Core breeding habitat has been identified in central Washington State (NatureMapping n.d.). PHS data report 12 occurrences of prairie falcon within 2 miles of the Lease Boundary (**Figure 3.6-3**), though none within the Lease Boundary. Prairie falcon habitat consists of arid open environments, including steppe, with cliffs, bluffs, and canyons that provide nesting sites (Steenhof 2020). Access to prey species, including horned lark, meadowlark (*Sturnella neglecta*), and ground squirrel, is an important component of prairie falcon habitat (Steenhof 2020).

The breeding population of prairie falcon in North America is estimated at 8,546 individuals, while the population in Washington State was estimated at 200 individuals (circa 1971) (Steenhof 2020). Lack of long-term population data has resulted in imprecise population trends; however, Steenhof (2020) reports that populations in western North America may be declining. Prairie falcon is a state priority species.

In the Lease Boundary, suitable prairie falcon nesting habitat occurs on bluffs and canyons, and foraging habitat occurs in shrubland and grassland habitat (Horse Heaven Wind Farm, LLC 2022). The Lease Boundary may overlap core breeding habitat (NatureMapping n.d.) and the central Columbia Basin, which includes Benton County, supports the largest wintering population of prairie falcon in Washington State (Horse Heaven Wind Farm, LLC 2022). Prairie falcons (30 observations) were recorded in cropland and grassland within the Lease Boundary during all seasons, though observations were reported to be lower in spring and summer (Horse Heaven Wind Farm, LLC 2022).

Ring-necked Pheasant

Ring-necked pheasant (*Phasianus colchicus*) is an introduced gamebird that originated in Asia. The species now occupies habitat across most of northern and central United States and southern Canada. In Washington State, core breeding habitat includes most open habitats in eastern Washington, as well as coastal areas. The species

is adaptable and occupies a variety of habitat types but generally requires areas with cover, such as dried grasses, for nesting and roosting, roosting perch sites (e.g., trees or shrubs), and crowing areas.

Reliable population estimates are not available for North America, and estimates are often variable. Harvest data maintained by WDFW suggest that ring-necked pheasant populations have declined since the early 1980s (WDFW n.d.[b]). In Washington State, WDFW releases pen-raised ring-necked pheasants to supplement wild populations (WDFW 2023f). Local and national population trends are not known, as reliable population data are not available. Giudice and Ratti (2020) report declines in the Rocky Mountain states; however, it is expected that populations are stable given state management of the species. Ring-necked pheasants are hunted, and hunting pressures represent a primary threat to populations. Additional threats may include contamination of food sources from insecticides, mortality from agricultural machinery and road vehicles, and degradation of habitat from increased industrial farming (Giudice and Ratti 2020). Ring-necked pheasant is a state priority species.

Benton County is within a pheasant management zone, and agricultural and grassland habitat in the Lease Boundary is expected to provide habitat for ring-necked pheasant (Horse Heaven Wind Farm, LLC 2022). Ten observations of ring-necked pheasant were recorded during field surveys, primarily in cropland and grassland (Horse Heaven Wind Farm, LLC 2022). PHS data report 10 occurrences of ring-necked pheasants within 2 miles of the Lease Boundary (**Figure 3.6-3**).

Sagebrush Sparrow

Sagebrush sparrow (*Artemisiospiza nevadensis*) range consists of western states from Washington to northern Mexico, where the species is associated with shrub-steppe habitat. In Washington State, it occurs primarily in the sagebrush and bunch grass shrub-steppe ecosystems of the Columbia Basin. Sagebrush sparrows are associated with semi-open habitat with evenly spaced shrubs, and with sagebrush (Martin and Carlson 2020).

Regional population estimates are not available for sagebrush sparrows, although, WDFW (2023g) reports that populations in Washington State are stable. Martin and Carlson (2020) report that breeding bird survey data suggest declines of 1 to 2 percent in western states, including Washington State. Threats to the species are primarily reported to be from habitat loss and degradation. Changes in fire regimes (e.g., suppression and increased frequency of high intensity fires) have changed patterns of plant succession and composition (Martin and Carlson 2020). The species is a candidate for listing in Washington State and is a state priority species.

Sagebrush habitat in the Lease Boundary provides suitable breeding and living habitat for sagebrush sparrow. The Lease Boundary overlaps limited core breeding habitat (NatureMapping n.d.). One sagebrush sparrow was recorded during spring 2018 field-based surveys (Horse Heaven Wind Farm, LLC 2022). PHS data report one occurrence of sagebrush sparrow within 2 miles of the Lease Boundary (**Figure 3.6-3**).

Sage Thrasher

Sage thrasher (*Oreoscoptes montanus*) breeding range includes the western United States, extending into southern Canada, while winter range includes the southern states and northern Mexico. In Washington State, the species' core breeding range extends along the Columbia Basin to Okanogan County (NatureMapping n.d.). Sage thrashers require shrub-steppe habitat in their breeding range, generally using expansive areas of sagebrush, though they may use smaller fragments in agricultural areas (WDFW 2023h).

Washington population estimates are not available but are considered stable (Reynolds et al. 2020; WDFW 2023h). Density estimates for Washington counties published by Dobler et al. (1996, as reported by Reynolds et al. 2020) were between 0.504 and 0.524 birds per acre (0.204 and 0.212 birds per hectare), while Stephens

(1985, as reported by Reynolds et al. 2020) reported densities of 1.79 birds per acre (0.725 birds per hectare). Degradation and loss of habitat are considered the primary threat to sage thrashers. Sage thrasher is a candidate species for state listing and is a state priority species.

Shrub-steppe habitat in the Lease Boundary provides suitable breeding habitat for sage thrashers, and the Lease Boundary overlaps core breeding habitat (NatureMapping n.d.). Three occurrences of sage thrasher were recorded during field surveys—one in spring and two in fall (Horse Heaven Wind Farm, LLC 2022). The individuals were using bushes and fences in grassland areas (Horse Heaven Wind Farm, LLC 2022).

Sandhill Crane

Sandhill crane (*Antigone canadensis*) breeding range extends across most of the northern United States and Canada, with overwintering range in the southern United States. In Benton County, the Sunnyside-Snake River Wildlife Area provides an important stopover area for migrating sandhill cranes. Some nesting of greater sandhill cranes occurs in Yakima County. Breeding occurs in marsh, wetland, and bog habitat, as well as wet meadows (Gerber et al. 2020). Grain fields and aquatic habitat (shallow ponds, sloughs) are used during migration stopovers (Gerber et al. 2020).

The Central Valley population of sandhill crane, which winters in Central Valley, California, is estimated to be 8,000 individuals, while the Pacific Flyway population is estimated at 25,000 (Gerber et al. 2020). More than 35,000 sandhill cranes move along the Columbia Basin annually, making stopovers near Benton County (WDFW 2023i). Approximately 30 pairs of sandhill cranes breed in Washington State (WDFW 2015). In general, short-term trends show that sandhill crane populations appear stable (Gerber et al. 2020). Sandhill cranes are state listed as endangered and are a state priority species.

Transient birds could forage in agricultural fields, shrubland, and grassland habitat in the Lease Boundary; however, the Lease Boundary is not expected to provide nesting or substantial foraging habitat. Important stopover locations do occur in Benton County, though outside of the Lease Boundary. Sandhill crane was the most frequently observed large bird species over the western portion of the Lease Boundary (28 percent of large bird observations) (Horse Heaven Wind Farm, LLC 2022). The Applicant reports 3,050 individuals in 27 groups moving over the Lease Boundary, predominantly in fall (Horse Heaven Wind Farm, LLC 2022). No sandhill cranes were recorded perched or on the ground (Horse Heaven Wind Farm, LLC 2022).

Tundra Swan

In North America, tundra swans (*Cygnus columbianus*) breed in northern Canada and Alaska and overwinter in patches of habitat in the western United States and the east coast. Overwintering habitat includes tidal and freshwater systems and agricultural fields (Limpert et al. 2020).

The North American population of tundra swan is estimated at 169,300 individuals. Western wintering swan populations appear to be decreasing at a rate of 2.3 percent per year from 1980 to 1989 (Limpert et al. 2020). Threats to tundra swan populations include hunting on winter grounds, as well as mortality due to consumption of spent lead shots and fishing leads (Limpert et al. 2020). Tundra swans are a state priority species.

Tundra swans may forage in agricultural areas in the Lease Boundary during migration stopovers. One group of 35 individuals was recorded flying over the Lease Boundary during spring surveys (Horse Heaven Wind Farm, LLC 2022). This group had been incidentally observed in agricultural fields (Horse Heaven Wind Farm, LLC 2022).

Vaux's Swift

Vaux's swift (*Chaetura vauxi*) range extends from the Yukon through the western United States to northern South America (Schwitters et al. 2021). In Washington State, breeding habitat is predominantly in the western and northeastern portions of the state (NatureMapping n.d.). Habitat used during migration includes access to roost locations that may include trees, snags, and industrial and residential chimneys (Schwitters et al. 2021).

The North American Vaux's swift population is estimated between 200,000 and 300,000 individuals (Schwitters et al. 2021); however, local population estimates are not available. Short-term trend estimates suggest declines of 10 to 30 percent (NatureServe 2021), while long-term trends suggest that populations may have decreased by 50 percent from 1970 levels (Schwitters et al. 2021). Vaux's swift is a state priority species.

The Lease Boundary does not provide suitable nesting or roosting habitat for Vaux's swift; however, Vaux's swifts may migrate over the Lease Boundary. Large numbers of Vaux's swifts move through the Walla Walla River Important Bird Area, approximately 2 miles east of the Least Boundary (Horse Heaven Wind Farm, LLC 2022). Vaux's swifts were not recorded during field surveys.

Townsend's Big-eared Bat

Townsend's big-eared bat (*Corynorhinus townsendii*) range extends across most of the western and central United States into southern British Columbia (NatureServe 2021). Most of Washington State provides core habitat for the species, except along the coastal mountain range (NatureMapping n.d.). Habitat is variable and includes coniferous forests, riparian habitat, shrub-steppe, and open fields. Suitable habitat includes access to suitable maternity and hibernation sites, which include caves, mines, buildings, tunnels, and bridges (WDFW 2023j).

The global abundance is estimated between 10,000 and 1,000,000 individuals; however, local estimates are not available (NatureServe 2021). Long-term trends are estimated to be declines of 10 to 50 percent from 1980s levels, while short-term trends may be stable or declining slightly (NatureServe 2021). Threats to the species include disturbance and destruction of hibernacula and maternity colonies, as well as timber harvesting that reduces suitable roosting and foraging habitat (NatureServe 2021). Townsend's big-eared bat is a candidate species for state listing and is a state priority species.

The Lease Boundary overlaps core habitat (NatureMapping n.d.); however, the area lacks microhabitat features, such as roosting or hibernacula sites (Horse Heaven Wind Farm, LLC 2022). Townsend's big-eared bats were not recorded during acoustic bat surveys conducted in the Lease Boundary (Horse Heaven Wind Farm, LLC 2022).

Townsend's Ground Squirrel

Townsend's ground squirrel (*Urocitellus townsendii townsendii*) range is limited to southeastern Washington State, south of the Yakima River, west and north of the Columbia River in Benton, Yakima, and Kittitas Counties (NatureServe 2021; WDFW 2023k). The species occurs in natural habitats such as shrub-steppe and grasslands, as well as modified habitat such as pastures, orchards, highway margin, and canal banks (WDFW 2023k). Townsend's ground squirrels provide an important prey source for predators, including ferruginous hawk, as well as affecting soil structure and providing burrows to other species (WDFW 2023k).

Comprehensive population studies have not been conducted; however, long-term trends estimate declines of more than 70 percent (NatureServe 2021). The dominant threat to the species is habitat loss to agriculture and degradation of shrub-steppe habitat from cheatgrass and other invasive plants (WDFW 2023k). Townsend's ground squirrel is a candidate species for state listing and a state priority species.

Townsend's ground squirrel HCAs have been mapped along the ridge located adjacent to the northern perimeter of the Lease Boundary, extending into the Lease Boundary at a few locations (Appendix K,[21] Horse Heaven Wind Farm, LLC 2022). The Lease Boundary overlaps an HCA on the southern perimeter, west of Highway 395. While mapped HCAs are predominantly adjacent to the Lease Boundary, shrubland, grassland, fallow agricultural areas, and road margins may provide habitat for Townsend's ground squirrel. Data presented by Washington's NatureMapping Program indicate that the Lease Boundary overlaps core Townsend's ground squirrel habitat (NatureMapping n.d.). Two Townsend's ground squirrel colonies occur in the northwest portion of the Lease Boundary, and another colony was documented within 350 feet of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). However, field surveys were limited to a 25-acre parcel of agricultural private land in the southwestern portion of the Lease Boundary and did not cover shrub-steppe or grassland habitat. PHS data report nine occurrences of Townsend's ground squirrel within 2 miles of the Lease Boundary (**Figure 3.6-4**).

Black-tailed Jackrabbit

Black-tailed jackrabbit (*Lepus californicus*) range extends across most of western United States, with Washington State representing the northern edge of its range. In Washington State, core habitat is associated with arid steppe zones in the Columbia Basin (NatureMapping n.d.). Suitable habitat includes sagebrush- and rabbitbrush-dominated landscapes, as well as mixed shrub and grassland areas, where the species tends to select areas with higher shrub cover to obtain shelter (WDFW 2023l).

Population estimates are not available, and the species is considered common across much of its range in the United States (NatureServe 2021). Long-term trends are suggested to be stable across most of its range; however, localized declines in population are expected due to changes in habitat (NatureServe 2021). Threats to the species include habitat loss and mortality from persecution and disease (NatureServe 2021). Black-tailed jackrabbit is a candidate species for state listing and is a state priority species.

Black-tailed jackrabbits could occur in sagebrush and rabbitbrush habitat in the Lease Boundary. The Lease Boundary overlaps core black-tailed jackrabbit habitat (NatureMapping n.d.), though the Applicant reports that the species is uncommon within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). Black-tailed jackrabbit was not recorded during field studies; however, it should be noted that species-specific surveys were not conducted (Horse Heaven Wind Farm, LLC 2022). PHS data report five occurrences of black-tailed jackrabbit within 2 miles of the Lease Boundary **(Figure 3.6-3**).

White-tailed Jackrabbit

White-tailed jackrabbit (*Lepus townsendii*) range extends across much of western United States, north into southern Canada. In Washington State, the species' range generally consists of arid habitat within the Columbia plateau (WDFW 2023m). Suitable white-tailed jackrabbit habitat includes open bunchgrass habitat, often on hills and plateaus in summer and lower elevation sagebrush valleys in the winter (WDFW 2023m).

Local population estimates are not available; however, global populations are estimated at 10,000 to 1,000,000 individuals. Population trends are not available. Threats to the species include conversion of natural grassland and shrub habitat to agricultural land. White-tailed jackrabbit is a candidate species for state listing and a state priority species.

[21] Tetra Tech. 2021. Modeled Townsend's Ground Squirrel Habitat Concentration Area Maps Prepared in Response to Data Request 2 submitted on August 6, 2021.

Grassland and shrubland within the Lease Boundary could provide suitable habitat for white-tailed jackrabbit. Washington NatureMapping Program mapping identifies marginal habitat in the Lease Boundary (NatureMapping n.d.). White-tailed jackrabbits have not been recorded in the Lease Boundary, though species-specific surveys have not been conducted.

Pronghorn Antelope

Pronghorn antelope range extends across the western United States into southern Canada and northern Mexico. In Washington State, the species was extirpated in the 20th century; however, it was reintroduced on the Yakama Reservation in 2011. Pronghorn antelope inhabit grasslands and shrublands. In winter, herds occupy areas with less snow cover (WDFW 2023n).

The current pronghorn antelope population around the Lease Boundary is estimated at 248 individuals (Fidorra et al. 2019). The population has increased since introduction in 2011, partially due to introduction of additional adults in 2017 and 2019 (Fidorra et al. 2019). Data provided by the Yakima Nation indicates that 15 collared females were observed in 2017 with fawns (Yakima Nation 2023). Pronghorn were initially released on the Yakama Reservation; however, pronghorn groups visually observed by aircraft in 2019 and 2021 show range expansion eastward off the Yakama Reservation (Fidorra et al. 2019; Fidorra and Peterson 2021). Pronghorn antelopes are not listed in Washington State but have been included in this special status species section because of the species' importance to the Yakama Nation and recent re-introduction to the region.

Shrubland, grassland, and agricultural fields in the Lease Boundary provide suitable habitat for pronghorn antelopes. Winter surveys conducted by Fidorra and Peterson (2021) documented groups of pronghorn antelope (approximately three groups, including one larger group) in the Lease Boundary (Tetra Tech 2021b). Pronghorn antelope were recorded in Yakima, Klickitat, and Benton Counties, with larger groups (13 to 24) recorded in several locations in Benton County (Fidorra and Peterson 2021). Tetra Tech (2021b) reports that the majority of groups observed during the 2015 and 2016 survey conducted by the Yakama Nation were recorded in rangeland, followed by cropland, then CRP land. This is supported by data collected in 2021 provided by Yakama Nation that show pronghorn habitat use between Yakama Reserve and the eastern portion of the Lease Boundary (Yakama Nation 2023). Pronghorn antelopes were reported by the Applicant in the Lease Boundary during field surveys (Horse Heaven Wind Farm, LLC 2022).

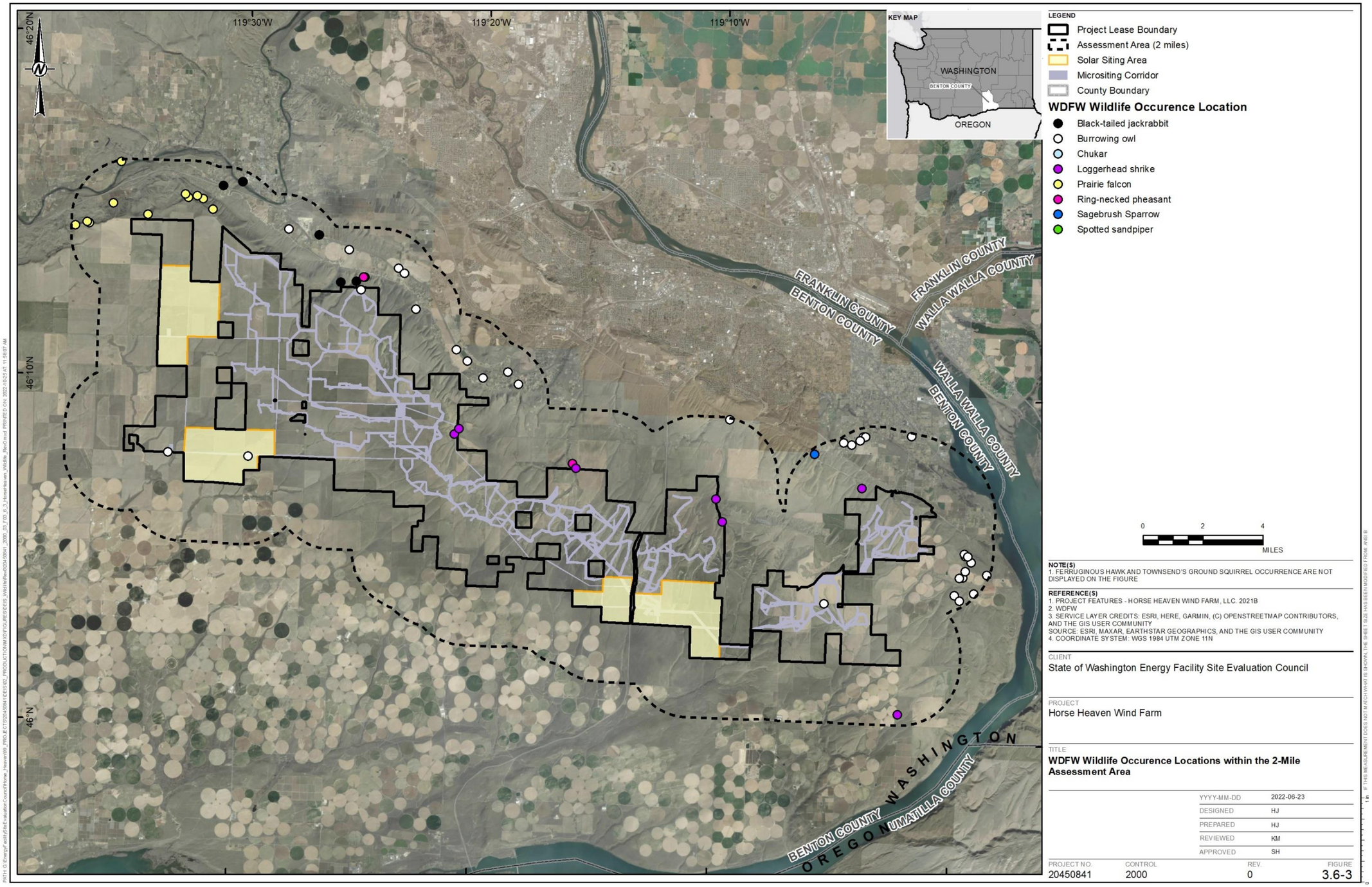

Figure 3.6-3: WDFW Wildlife Occurrence Locations within the 2-Mile Assessment Area

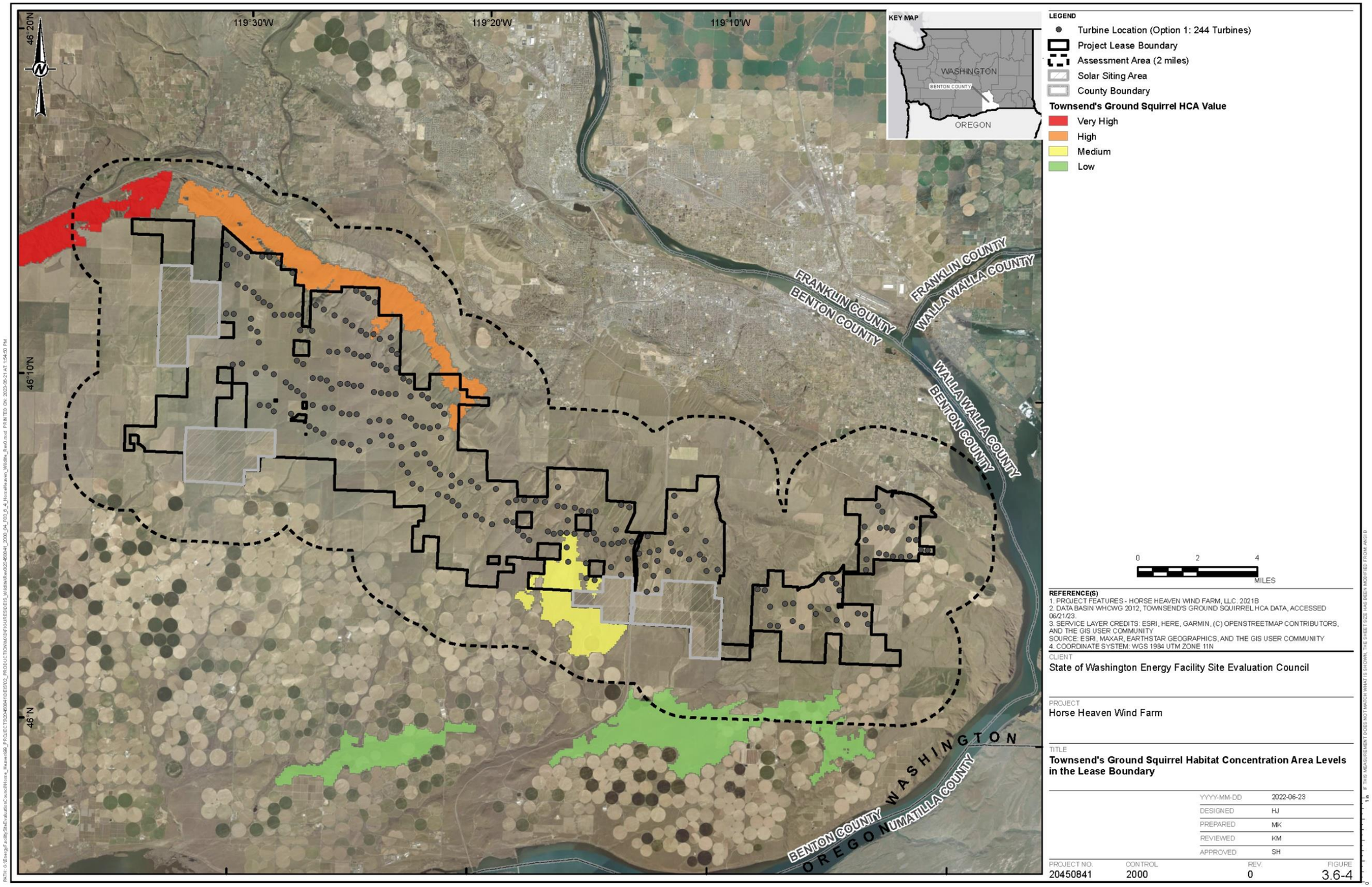

Figure 3.6-4: Townsend's Ground Squirrel Habitat Concentration Area Levels in the Lease Boundary

3.7 Energy and Natural Resources

This section characterizes the availability of existing energy and natural resources within the vicinity of the Lease Boundary for the proposed Horse Heaven Wind Farm (Project, or Proposed Action) and in the State of Washington. Section 4.7 discusses the Project's impact on energy and natural resource availability within the vicinity of the Lease Boundary and in Washington State. This evaluation of energy and natural resources is in accordance with Washington Administrative Code (WAC) 463-60-342 as it considers the impact of the Project's consumption of non-renewable and renewable resources.

Regulatory Setting

WAC 463-60-342 sections (1) through (5) require an applicant for site certification to provide information pertaining to the following:

- Amount required/rate of use and efficiency of consumption of energy and natural resources (WAC 463-60-342[1]).
- Sources of supply, locations of use, types, amounts, and availability of energy or resources to be used or consumed (WAC 463-60-342[2]).
- Non-renewable resources that will be used, made inaccessible or unusable (WAC 463-60-342[3]).
- Conservation measures and/or renewable resources which will or could be used (WAC 463-60-342[4]).
- Scenic resources which may be affected (WAC 463-60-342[5]).

Additional Washington State regulations pertaining to energy and natural resources include:

- Washington State Clean Energy Transformation Act (CETA) (Chapter 19.405 RCW) sets targets for reducing greenhouse gas emissions and establishes energy efficiency standards for buildings and appliances. CETA states that it is the policy of the state to eliminate coal-fired electricity, transition the state's electricity supply to one hundred percent carbon-neutral by 2030, and one hundred percent carbon-free by 2045 (Washington State Legislature 2019).
- Washington State Energy Independence Act (Chapter 19.285 RCW) requires electric utilities serving at least 25,000 retail customers to use renewable energy and energy conservation over a 10-year period and set two-year targets.
- Washington State Growth Management Act (Chapter 36.70A RCW) requires cities and counties to plan for growth while conserving natural resources and protecting critical areas like wetlands and forests.

Additional Washington State regulation pertaining to water resources includes the Revised Code of Washington 90.03, which establishes water rights appropriation standards and procedures. The State of Washington does not require a water rights permit if the water originates from a permitted utility (Ecology n.d.).

Benton County Energy Code (BCC Chapter 3.14) establishes minimum standards for the design and construction of new buildings to promote energy efficiency.

Benton County Public Utility District (Benton PUD) Energy Efficiency Rebate Program offers incentives for commercial and residential customers who develop energy efficiency measures and upgrades to their businesses and homes.

3.7.1 Affected Environment

Benton County is in southeastern Washington State. The Columbia River bounds Benton County to the north, east, and south, while Klickitat and Yakima Counties bound Benton County to the west. The county is predominantly rural and agricultural in nature, with unincorporated areas making up most of the jurisdiction. The Lease Boundary is south of the Tri-Cities: Kennewick, Pasco, and Richland, Washington.

3.7.1.1 Power Generation and Demand

Regional Power Generation

Natural resources that contribute to power generation in Washington State can be broken into two categories: renewable and non-renewable, also referred to as conventional. Non-renewable supplies of energy are limited to the amounts that can be mined or extracted from the earth. Renewable energy, by contrast, is power from sources that are naturally replenishing. There are currently 106 conventional and renewable energy power plants operating in Washington. Washington's energy providers maintain the capacity to produce upwards of 92,366 thousand megawatt (MW) hours per year (DOE n.d.). In addition to its power-generating capacity, the State of Washington also contains five crude oil refineries that can process almost 652,000 barrels of crude oil per day (EIA 2022). This section provides a general summary of Washington's current power generation portfolio.

Non-Renewable Energy

Non-renewable energy sources include petroleum, hydrocarbon gas liquids, natural gas, coal, and nuclear energy. Currently, 21 conventional power plants operate in Washington. The combined "nameplate" generating capacity of Washington's conventional power plants is 6,990 MW (DOE n.d.). Nameplate capacity is the amount of electricity a generator can produce when running at its maximum designed output. Washington's non-renewable electricity-generating portfolio includes the following:

- **Natural Gas:** In 2019, natural gas was the second-largest source of in-state net power generation and was responsible for producing 15 percent of Washington's total electricity. In 2019, electricity produced by natural gas increased 9 percent from 2018. Washington's utilities and energy producers import natural gas because the state maintains no petroleum or natural gas reserves (EIA 2021).
- **Nuclear:** Nuclear power supplied about 8 percent of Washington's net electricity generation in 2019. The Columbia Generating Station nuclear power plant in south-central Washington is the state's fifth-largest power-producing facility by capacity and has been in operation since 1984. By resource, nuclear power represents Washington's third-largest source of energy (EIA 2021).
- **Coal:** Energy produced from coal represents Washington's fourth-largest source of energy. The TransAlta Centralia coal-fired power plant is the state's third-largest electricity-producing facility by capacity. In 2019, the facility produced less than 7 percent of Washington's electricity. In 2020, TransAlta Centralia retired one of its two coal-fired units, and the company plans to retire its last remaining operational unit in 2025. Although Washington has upwards of 700 million tons of recoverable coal reserves, the last coal mine in the state closed in 2006 (EIA 2021).

Renewable Energy

Currently, 85 renewable power plants operate in Washington, with a combined generating nameplate capacity of 23,443 MW. Other than hydroelectric power, renewable resources accounted for almost 8 percent of the state's

electricity generation in 2019 (EIA 2021). The following describes the status of renewable energy production in Washington:

- **Hydroelectric:** Washington is the nation's largest producer of hydroelectric power. Hydroelectric power typically accounts for more than 66 percent of Washington's electricity generation. Eight of the 10 highest electricity-producing facilities in Washington are hydroelectric power plants (EIA 2021).
- **Wind:** In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Wind has contributed 6 percent or more to the state's electricity production since 2013 (EIA 2021).
- **Solar:** Electricity generation from solar energy in Washington remains small. Almost all of the electricity produced from solar energy comes from rooftop and other small-scale (less than 1 MW) photovoltaic power installations (EIA 2021).
- **Biofuels:** Biofuels are transportation fuels such as ethanol and biomass-based diesel fuel that are made from biomass materials (EIA 2020). Washington has several biogas and biofuel projects, such as:
  - Anaerobic digesters that capture methane from dairy cow waste to fuel electricity generation
  - Production of 114 million gallons of biodiesel fuel per year from two biofuel facilities. This equals about 20 percent of Washington's annual consumption of diesel fuel (EIA 2021)

Energy Infrastructure within the Project Vicinity

The following is a summary of the existing energy infrastructure within the vicinity of the Lease Boundary:

- The Nine Canyon Wind Project is just southeast of Kennewick in south-central Benton County. The Nine Canyon Wind Project is less than 1 mile from the Lease Boundary at its nearest point. The project includes 63 wind turbines constructed in three phases between 2002 and 2008. The wind farm has a nameplate generating capacity of 95.9 MW of electricity (Energy Northwest n.d.).
- Two Bonneville Power Administration high-voltage transmission lines intersect the Lease Boundary. The McNary-Franklin No. 2 Transmission Line runs northeast to southwest through the east-central portion of the Lease Boundary. The McNary-Badger Canyon No. 1 Transmission Line runs north to south, adjacent to the western portion of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022).
- There are numerous existing transmission lines and substations located north of the Lease Boundary that traverse the area south of the Tri-Cities east to west (Horse Heaven Wind Farm, LLC 2022).

Local Energy and Natural Resource Providers

Horse Heaven Wind Farm, LLC (Applicant) has identified the following utilities and suppliers as potential providers of energy and natural resources for the Project:

- **Public Utility District (PUD) No. 1 of Benton County**: Benton PUD's business operations include energy purchases, generation, transmission, distribution, and sale of electricity. Benton PUD's operations cover approximately 939 square miles of Benton County. Benton PUD's properties include 37 substations, approximately 91 miles of 115-kilovolt transmission line, and 1,590 miles of distribution lines (Benton PUD 2021).

- **Benton Rural Electric Association (REA)**: Benton REA is a not-for-profit, consumer-owned electric cooperative. Benton REA currently serves more than 11,000 members in Benton, Yakima, and Lewis Counties in Washington. The Lease Boundary is located within Benton REA District 3 (Benton REA 2022).
- **City of Kennewick Utility Services Division of Public Works**: Kennewick is responsible for providing public water service, utility management, and water system development within its water service boundary. Kennewick provides water service to approximately 80,986 people throughout its water service area boundary, extending beyond its corporate limits (City of Kennewick 2017).

Regional Energy Demand

Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Washington's net generation often exceeds the state's electricity demand. This allows energy producers to send excess power to the Western Interconnection (EIA 2021). Western Interconnection is a network consisting of approximately 136,000 miles of transmission lines. It spans 1.8 million square miles in all or part of 14 states, the Canadian provinces of British Columbia and Alberta, and the northern part of Baja California in Mexico and serves over 80 million people (Western Electricity Coordinating Council n.d.).

Table 3.7-1 shows the forecast electricity demand for the four states (Washington, Oregon, Idaho, and Montana) that make up the Northwest Power and Conservation Council, compared to 2021's expected use. The Northwest Power Act of 1980 authorized the establishment of the Northwest Power and Conservation Council with the intent of conserving natural resources and assuring reliable access to energy throughout the region. As shown in the table, the region's energy needs in 2041 are anticipated to average 21,532 to 27,304 MW for the entire year (Northwest Power and Conservation Council 2021). This suggests that by 2041, the region could see anything from a reduction in demand for electricity to a 22.5 percent increase in demand.

Table 3.7-1: Pacific Northwest Forecast Range of Electricity Use in Average Megawatts by Sector

Sector	Expect 2021 Use	2041 Forecast (Low Estimate)	2041 Forecast (Medium Estimate)	2041 Forecast (High Estimate)
Residential	8,148	8,674	8,860	9,049
Commercial	5,938	5,833	6,202	6,673
Industrial	6,186	4,147	5,892	7,541
Transportation	67	733	816	904
Street Lighting and Water Services	271	252	280	303
Irrigation	1,016	941	1,164	1,465
Data Centers	657	952	1,179	1,369
Total	22,283	21,532	24,393	27,304

Source: Northwest Power and Conservation Council 2021

3.7.1.2 Water Utilities and Demand

Sections 3.4 and 4.4 evaluate the Project's potential impacts on water resources. There are no public water supply wells within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). The Applicant has indicated that the City of Kennewick would supply water for the Project's construction stage. The Kennewick Utility Services

Division of Public Works is responsible for the city's water treatment plant, wastewater treatment plant, wastewater collection, and water distribution programs within its jurisdiction.

Since 2007, Kennewick has experienced decreasing per-capita water demand. Between 2007 and 2014, Kennewick's water service area population increased by more than 19 percent, but the volume of water supplied to the system only increased by approximately 5 percent. Kennewick has attributed the decrease in demand to water use efficiency practices and the repair of water system leaks.

Overall, water demand within Kennewick's system is expected to increase by approximately 33 percent by the end of 2035. Kennewick's existing water sources are sufficient to meet the projected demands of the system through 2025. Beyond 2025, additional source capacity will be needed to meet Kennewick's water demands.

Kennewick completed construction of an aquifer storage and recovery (ASR) well in 2014. Ongoing testing of the ASR well and the aquifer's storage capacity has been performed since the well was constructed. If the ASR well becomes fully developed and receives approval from regulatory agencies, it may provide a maximum of 2,080 gallons per minute. Even with the addition of the ASR well, however, Kennewick is projected to have a slight source capacity deficiency by 2035 (City of Kennewick 2017).

3.7.1.3 Construction Aggregate Resources and Demand

Sand, gravel deposits, and bedrock may be mined or quarried to produce raw materials known as aggregates. Aggregates are necessary for making ready-mixed concrete, asphalt, and many other building materials. Aggregates are required to build and maintain infrastructure such as:

- Roads, highways, and bridges
- Homes, buildings, and schools
- Public works projects

Construction aggregate is a non-renewable resource composed of sand and gravel. In 2017, the State of Washington was listed among the top 10 state producers of construction aggregate. Mines within Washington produced 33,300 thousand metric tons of construction sand and gravel from 206 active pits and dredging operations (USGS 2020). In 2020, demand for aggregate in Washington exceeded 500 million tons, and forecasts predict that by 2030, aggregate demand could exceed 1,500 million tons (DNR 2022).

Concrete is also a non-renewable resource that is usually a mixture of aggregates and paste. The aggregates are sand and gravel or crushed stone, and the paste consists of water and cement. Typically, concrete is a mixture of about 10 to 15 percent cement, 60 to 75 percent aggregate, and 15 to 20 percent water. There are several active aggregate mining operations within the vicinity of the Lease Boundary. The nearest quarry to the Lease Boundary is in Kennewick, Washington. Ash Grove in Seattle, Washington, is the only cement plant within the state. Ash Grove makes 33 percent of all the cement used in Washington. In 2015, the State of Washington consumed 1.8 million metric tons of cement (Portland Cement Association 2016, 2023).

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3.8 Land and Shoreline Use

This section describes existing land use and shoreline resources, as well as the regulatory setting, for the proposed Horse Heaven Wind Farm (Project, or Proposed Action) vicinity. The Project vicinity includes the areas 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. The Project's alignment with relevant land use documents and ordinances and adopted state, county, and local plans, goals, and policies is presented in **Appendix 3.8-1**. An evaluation of proposed changes to existing land use is presented in Section 4.8.

Regulatory Setting

Comprehensive land use plans specify the types of present and future land development that can occur within a specified area. In most cases, the preparation of comprehensive land use plans occurs through a public participation process. Once the plans are finalized, publicly elected officials approve them. The intent of this process is to capture local values and attitudes toward future development. Within the State of Washington, land use regulations and zoning ordinances vary by local government jurisdiction. For instance, Benton County's comprehensive land use plan and zoning ordinances only apply to the unincorporated areas and communities within its geographical boundaries. Similarly, the comprehensive land use plans prepared by the incorporated communities only apply to land use management within their jurisdictional boundaries.

The Washington State Growth Management Act (GMA) (Revised Code of Washington [RCW] 36.70A.040) requires that cities and counties adopt comprehensive, long-term land use plans for physical development within their jurisdictions. The comprehensive land use plans include a land use element that establishes the desired pattern of appropriate land use, as well as policies and guidelines for the development of those uses. The land use element designates the proposed general distribution and general location and extent of the uses of land, where appropriate, for the following purposes:

- Agriculture and timber production
- Housing
- Commerce and industry
- Recreation and open spaces
- General aviation airports
- Public utilities and facilities
- Other land uses

Local governments and their resource managers use local zoning ordinances, specific plans, and maps to implement the land use element within a comprehensive land use plan.

Similar to the State of Washington's requirements for comprehensive land use plans, the Shoreline Management Act (SMA) of 1971 (RCW 90.58) requires all counties and most towns and cities with shorelines in Washington to develop and implement Shoreline Master Programs (SMP). The SMA applies to all 39 Washington counties and about 250 towns and cities with stream, river, lake, or marine shorelines. Under the SMA, SMPs must contain a public access element, including provisions for public access to publicly owned areas. The SMA also requires that applicable communities include an element for preserving and enlarging recreational opportunities. The

Washington State Department of Ecology has adopted the Shoreline Master Program Guidelines (Chapter 173-26 Washington Administrative Code), which require local government reviews and updates of SMPs.

3.8.1 Affected Environment

Benton County is in southeastern Washington State. The Columbia River bounds Benton County to the north, east, and south, while Klickitat and Yakima Counties bound Benton County to the west. Benton County is located at the confluence of the Columbia, Yakima, and Snake Rivers. The Yakima River runs through the middle of the county to its confluence with the Columbia River in Richland, Washington. The county also features several mountains and ridges such as the Horse Heaven Hills, Rattlesnake Mountain, Badger Mountain, and Candy Mountain (Benton County 2020).

Benton County comprises a total of 1,115,673 acres. The U.S. Department of Energy's Hanford Reservation occupies approximately 24 percent of the landmass in Benton County. The unincorporated areas of the county are predominantly rural and agricultural in nature, with unincorporated areas making up most of the county. Unincorporated communities fall under the county government's jurisdiction. The incorporated cities within Benton County include Benton City, Kennewick, Prosser, Richland, and West Richland (Benton County 2022). **Table 3.8-1** illustrates the distribution of land use types in Benton County. Several unincorporated communities fall under the county government's jurisdiction.

Table 3.8-1: Land Use Types and/or Designation and Distribution in Benton County

Land Use Type and/or Designation	Corporation	Acres	Square Miles	Percentage
Cities and Urban Growth Areas	Incorporated	72,245	113	6.58
Hanford Site	Federal Lands (Not Applicable)	266,351	416	24.27
Hanford Reach	Federal Lands (Not Applicable)	12,443	19	1.13
GMA Agriculture	Unincorporated	647,107	1,011	58.96
Open Space Conservation	Unincorporated	2,108	3	0.19
Public	Unincorporated	15,163	24	1.38
Rural Lands 1	Unincorporated	1,182	2	0.11
Rural Lands 1–3	Unincorporated	318	0	0.03
Rural Lands 5	Unincorporated	74,039	116	6.75
Rural Lands 20	Unincorporated	1,813	3	0.17
Community Center	Unincorporated	500	1	0.05
Community Commercial	Unincorporated	26	0	0.00
Interchange Commercial	Unincorporated	325	1	0.03
General Commercial	Unincorporated	202	0	0.02
Light Industrial	Unincorporated	1,333	2	0.12
Heavy Industrial	Unincorporated	2,344	4	0.21
Total Unincorporated Area	Not Applicable	746,460	1,166	68.01
Total County Area	Not Applicable	1,097,499[(a)]	1,715	100

Source: Benton County 2020
Note:
[(a)] An acreage discrepancy exists in Benton County Comprehensive Plan for Total County Area
GMA = Washington State Growth Management Act

Project Geography

The Project would consist of a renewable energy generation facility within the Horse Heaven Hills area of unincorporated Benton County, Washington. The Project's Lease Boundary is located approximately 4 miles south of the Tri-Cities urban area, along the Columbia River. The cities of Kennewick, Pasco, and Richland, Washington, make up the Tri-Cities area. The geographical extent of the Project would be as follows:

- The Lease Boundary encompasses approximately 72,428 acres.
- The Project's Wind Energy Micrositing Corridor encompasses 11,850 acres and consists of the area where the turbines and supporting facilities would be located.
- The Solar Siting Areas encompass 10,755 acres located within the Lease Boundary.
- Approximately 908 acres within the Project's Wind Energy Micrositing Corridor and Solar Siting Areas overlap.
- The elevation of the Lease Boundary ranges from 604 to 2,051 feet above mean sea level (Horse Heaven Wind Farm, LLC 2022).

The topography within the Lease Boundary is dominated by rolling hills bisected by meandering canyons, some of which contain ephemeral (seasonal) or intermittent drainages. There are no major rivers or other perennial streams within the Lease Boundary (Heaven Hills Wind Farm, LLC 2022).

3.8.1.1 Land Ownership within Study Area

The Lease Boundary serves as the primary study area for land ownership; however, land uses adjacent to the Lease Boundary can provide context for consistency evaluations. Existing land use within 1 mile of the Lease Boundary predominantly comprises agricultural lands, agricultural support facilities, and the Nine Canyon Wind Project. In the 2022 Application for Site Certification (ASC) for the Project, Appendix F presents a comprehensive list of Lease Boundary parcels, owners, and acres and a legal description of affected lands. The 72,428-acre Lease Boundary equates to approximately 6.5 percent of Benton County's territory and 11 percent of the land use designation "GMA Agriculture." The 2022 ASC indicates that Turbine Option 1 would involve more land disturbance than Turbine Option 2. The Project's total land disturbance of 6,869 acres under Turbine Option 1 is equal to approximately 1 percent of Benton County's lands designated as GMA Agriculture and 0.6 percent of the county's total territory.

According to the 2022 ASC, most of the Lease Boundary (approximately 69,556 acres) is privately owned and actively managed for dryland agriculture and livestock grazing. Among the private lands that make up the Lease Boundary, multiple parcels have been enrolled in the U.S. Department of Agriculture's Conservation Reserve Program (CRP). The acreage currently enrolled in the CRP within the Lease Boundary is unknown. Additionally, the Lease Boundary includes 2,739 acres in the state trust system managed by the Washington State Department of Natural Resources (DNR). The Lease Boundary includes all or part of five DNR-managed parcels that are state trust lands. The Applicant proposes the following actions on DNR-managed parcels:

- Three of the DNR-managed parcels would include turbines and supporting facilities.
- One DNR-managed parcel would be used for supporting facilities.
- One DNR-managed parcel is a possible site for the Project's County Well Road solar component (Horse Heaven Wind Farm, LLC 2022).

Conservation Reserve Program Lands

The CRP is a federally funded voluntary program that contracts with agricultural producers so that environmentally sensitive agricultural land is not farmed or ranched but instead devoted to conservation benefits. The U.S. Department of Agriculture Farm Service Agency provides participants with rental payments and cost-share assistance. Contract duration is between 10 and 15 years (USDA 2019). The Agricultural Act of 2014 (Public Law 113-79) allows landowners the opportunity to opt out of their CRP contracts unless the land is supporting enhanced wildlife habitat, is protecting sensitive aquatic and environmental resources, or has specifically been contracted in a manner to prevent a landowner from opting out.

State-managed Lands

The Washington Commissioner of Public Lands guides DNR's management of state-owned lands. The DNR's land policies come from numerous sources, such as the federal Enabling Act of 1889, the state constitution, state statutes, and various boards, councils, and commissions. The lands that the DNR manages on behalf of Washington State citizens and beneficiaries fall into three main categories: state trust lands, state-owned aquatic lands, and state natural areas (DNR 2021).

State Trust Lands

State trust lands managed by the DNR are different from other publicly managed lands in that they must be used to generate revenue for their designated beneficiaries, such as public schools, universities, and correctional institutions. The DNR currently manages 3 million acres of these federally granted trust lands. Classes of actions that the DNR approves for revenue-generating activities include:

- Harvesting timber, biomass byproducts, and other forest products
- Leasing lands for agricultural purposes, such as orchards and vineyards, irrigated agriculture, dryland crops, and grazing
- Leasing communications sites, mining and mineral leases, wind farms and energy production, commercial properties, and rights-of-way (DNR 2021)

In addition to earning income, activities on trust lands are managed to protect habitat for native plant and animal species, provide clean and abundant water, and offer diverse public recreation opportunities. **Figure 3.8-1** illustrates the location of DNR-managed state trust lands within the Lease Boundary and Project vicinity, as well as other publicly owned lands within the region.

3.8.1.2 Benton County Comprehensive Plan

Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. A discussion on the relevant land use policies and goals from the Benton County Comprehensive Plan that apply to the review of the Project is presented Section 3.8.2. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions. It also coordinates land use, transportation, and capital facilities by focusing on planning, scheduling, financing, and construction provisions to provide the identified levels of service in advance of development or upon demand.

All development regulations in Benton County are required to be consistent with the Benton County Comprehensive Plan. These include, but are not limited to, the zoning code, subdivision code, Critical Areas

Ordinance, SMP, and permit review processes. For instance, all codes related to traffic and utilities implement the comprehensive land use plan's goals and policies.

The Benton County Comprehensive Plan's purpose and intent is to provide for local needs relating to the use of land and infrastructure, including the protection of property and water rights and, in so doing, meet the state's minimum planning law requirements. In accordance with RCW 36.70A.070, the comprehensive land use plan includes the following required elements: land use, rural, housing, transportation, capital facilities, and utilities.

The land use element presents the framework within which future growth and development will occur consistent with community objectives and the requirements of law. Consistent with GMA requirements, the land use element designates the proposed general distribution, location, and extent of land uses for agriculture, timber production, housing, commerce, industry, recreation, open spaces, general aviation airports, public utilities, public facilities, and other functions, as applicable, and describes development densities and projections for future population growth (Benton County 2020).

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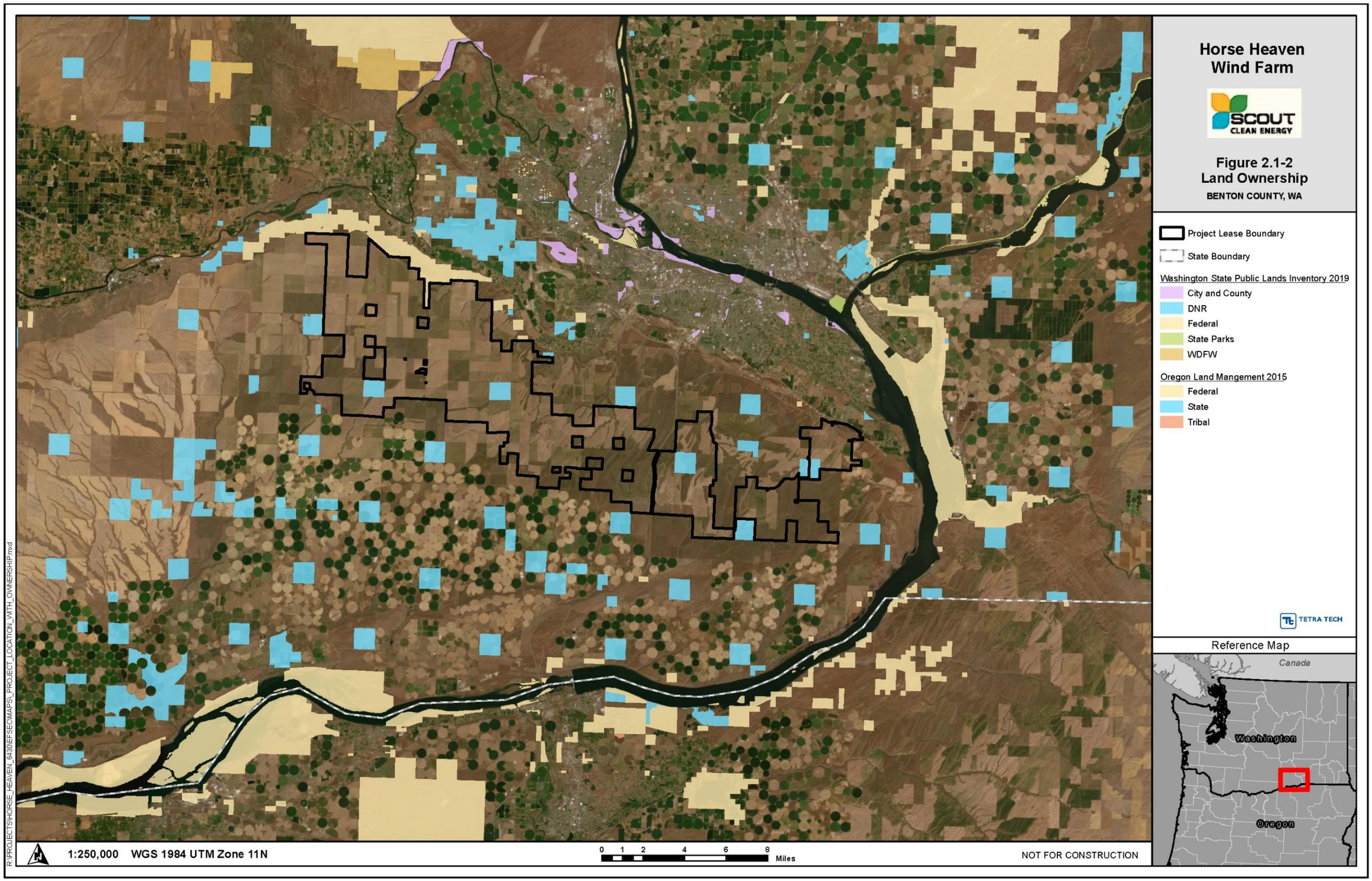

Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.8-1: Land Ownership within Project Vicinity

3.8.1.3 Benton County Shoreline Management Program

Benton County adopted an SMP update in 2021 pursuant to the SMA. Benton County prepared the SMP to align with the goals and policies outlined in the Benton County Comprehensive Plan. The SMP is a set of goals, policies, and regulations pertaining to shoreline development in the county. The SMA encourages reasonable and appropriate development of shorelines, with an emphasis on water-oriented uses that require a shoreline location and support economic development. The SMP's intent is to protect "the natural character of the shorelines, the land, vegetation, wildlife, and shoreline environment" (Benton County 2021a). Finally, the SMP "promotes public access and provides opportunities to enjoy views and recreational activities in shoreline areas" (Benton County 2021a).

Benton County's shoreline jurisdiction encompasses 330 miles of the Columbia and Yakima Rivers. The total acreage of upland shorelands regulated by Benton County's SMP is 14.93 square miles (Benton County 2021a). In accordance with the SMA, the Benton County SMP addresses the following:

- The Yakima and Columbia Rivers
- Land within 200 feet of the ordinary high-water mark of the Yakima and Columbia Rivers
- The Yakima and Columbia River floodways
- The contiguous 100-year floodplain extending up to 200 feet inland of the Yakima and Columbia River floodways
- Wetlands associated with the Yakima and Columbia Rivers (Benton County 2021a)

Fifty-eight percent of Benton County's shorelands occur along the Columbia River, and the remaining 42 percent occur along the Yakima River. Both the Columbia and the Yakima Rivers within Benton County are classified as Shorelines of Statewide Significance. This means that, under Washington State law, Benton County must apply specific shoreline management preferences and priorities to the Yakima and Columbia Rivers. Federal lands make up approximately 35 percent of the area within the county's shoreline jurisdiction (Benton County 2021a).

The Yakima River passes north of the western portion of the Lease Boundary, approximately 1.5 miles away at its closest location to the Project site. The Yakima River flows eastward to its confluence with the Columbia River near Richland, Washington. The Columbia River passes north, east, and south of the eastern portion of the Lease Boundary. At its closest location, the Columbia River is approximately 1.3 miles from the Lease Boundary. The Columbia River bends around the eastern portions of the Lease Boundary and ultimately flows west toward the Pacific Ocean (Horse Heaven Wind Farm, LLC 2022).

3.8.1.4 Specific Land Uses within the Study Area

Land use designations are property-specific and identify the type and intensity of land uses that a comprehensive land use plan allows. The Benton County Comprehensive Plan (2020 update) identifies 13 designations within unincorporated Benton County. Of the 13 land use designations, the entire Lease Boundary occurs within the GMA Agriculture designation and the corresponding zoning ordinance GMA Agriculture. **Table 3.8-2** provides a description of land use designation and corresponding zoning ordinance. **Figure 3.8-2** shows the Lease Boundary and the Benton County Comprehensive Plan land use designations for the Project vicinity.

Benton County has adopted zoning ordinances and maps necessary to bring the county's zoning code into compliance with the goals and policies of the adopted Benton County Comprehensive Plan. Benton County

prepared its zoning ordinances and zoning maps to implement the community vision and future as expressed by the public in the Benton County Comprehensive Plan. **Figure 3.8-3** illustrates the zoning ordinances for the Lease Boundary and Project vicinity. Benton County Code zoning ordinances and maps classify land into "Districts" according to the land use designations in the adopted comprehensive plan. The effect of zoning is to provide stability and certainty for future development by:

- Implementing land use maps by grouping compatible land uses and excluding incompatible land uses
- Identifying areas of investment and assisting economic sector planning
- Enabling government to assess the need for and fund capital and public service projects
- Enabling public utilities to calculate potential demand and plan capital facilities
- Providing assurances to homeowners that their property values will be protected

Table 3.8-2: Lease Boundary Land Use Designations and Corresponding Zoning Ordinance

Land Use Designation	Description	Corresponding Zoning Ordinance	Zoning Ordinance
GMA Agriculture	This land use includes agricultural land such as dryland and irrigated land identified by Benton County based on the criteria established by the GMA. A GMA Agricultural District zone conserves agricultural lands by establishing a 20-acre minimum parcel size and limits the range of other land uses to those dependent on, supportive of, ancillary to, or compatible with agricultural production as the principal land use.	GMA Agriculture District	At the time (February 8, 2021) of 2021 ASC submission to EFSEC, Benton County Code 11.17.030 through 11.17.070 specified wind farms and major solar-generating facilities as land uses that may be permitted for lands zoned GMA Agricultural District with approval of a conditional use permit by the Hearings Examiner.[(a)]

Sources: Benton County 2020, 2021c
Note:
[(a)] Currently, Benton County Code prevents the Benton County Council from issuing a Conditional Use Permit for new wind and solar farms within a GMA Agricultural District. Table 3.8-2A of Appendix 3.8-1 presents the applicable Benton County Code at the time the 2021 ASC was submitted on February 8, 2021.
ASC = Application for Site Certification; EFSEC = Washington Energy Facility Site Evaluation Council; GMA = Washington State Growth Management Act

Agriculture – Benton County

Benton County contains agricultural lands of long-term commercial significance. RCW 36.70A.030(3) characterizes agricultural lands of long-term commercial significance as land with the following characteristics:

- Growing capacity
- Productivity
- Soil composition of the land for long-term commercial production

Washington Administrative Code 365-190-050(3) states that “lands should be considered for designation as agricultural resource lands based on three factors:”

- Land specifically is not characterized by urban growth
- Land is used or is capable of being used for agricultural production
- Land has long-term commercial significance for agriculture

Benton County’s agricultural economy is diverse in crops grown and livestock raised. The largest crop type is wheat and wheat fallow, while other extensive crop types include corn, grapes, potatoes, apples, and onions. Benton County ranks third in Washington State by market value of agricultural products sold (crops and livestock), totaling about $923.2 million in value (Benton County 2017).

Table 3.8-3 shows the breakdown of lands designated as GMA Agriculture in Benton County. Agricultural lands in Benton County are primarily used for dryland agriculture (47 percent), with the remaining areas used for irrigated agriculture (40 percent) and rangelands (13 percent). When considering rural “other,” agricultural land type by percentage changes slightly with the amount of rangeland increasing and dryland agriculture decreasing. The rural “other” land use includes a mix of agricultural and non-agricultural uses (BERK 2016). The following describes the three main agricultural land uses in Benton County:

- **Dryland Agriculture**: Dryland agriculture occurs in geographic areas where biological productivity is normally limited by available soil moisture. Farmers overcome the lack of soil moisture through management techniques such as summer fallow. The widespread practice of summer fallow stores moisture for two years for use by a single crop. Farmers alternate between crop and non-crop years, and control weeds during the non-crop years through either mechanical or chemical methods (WSU 1992).
  - Within Benton County, dryland agriculture primarily occurs in the Horse Heaven and Rattlesnake Hills areas.
  - Economically viable dryland agriculture typically requires thousands of acres (Benton County 2020).
- **Irrigated Agriculture**: The purpose of irrigation is to supplement natural precipitation so that the moisture requirements of crops are met. Limited water resources prevent irrigation development in large areas of Washington State (WSU 1992).
- **Rangeland**: Range and pasture lands are diverse types of land where the primary vegetation produced is herbaceous plants and shrubs. These lands provide forage for beef cattle, dairy cattle, sheep, goats, horses and other types of domestic livestock. Also, many species of wildlife, ranging from big game such as elk to butterflies and nesting song birds such as meadowlarks, depend on these lands for food and cover. Native prairies are also considered part of these landscapes (NRCS n.d.).

Table 3.8-3: GMA Agriculture Type and Designated Acreage in Benton County

GMA Agriculture Land Type	Countywide Total Acres	Percentage of Total[a]
Dryland	304,839	39.65
Irrigated	296,432	38.56
Rangeland	112,190	14.59
Rural "other"	55,275[b]	7.19
Total Agriculture	768,736	

Sources: BERK 2016; Benton County 2020
Notes:
[a] Minor discrepancies in the total sum are due to rounding
[b] Includes agricultural and non-agricultural uses
GMA = Growth Management Act

American Viticultural Areas and Wine Industry in Washington

Washington is the second-largest wine-producing state in the United States, with more than 1,000 wineries making over 17 million cases of wine annually. Wineries in Washington contribute more than $8 billion in annual in-state economic impact. Within Washington State, agricultural land acreage dedicated to wine grape crops increased from approximately 50,000 acres in 2013 to approximately 60,000 acres in 2022. The number of wineries in Washington State increased from more than 600 wineries in 2014 to more than 1,000 wineries in 2022. The Washington State Wine Commission estimates that, on average, four new wineries are opened in Washington State each month (Washington Wine 2023a).

American Viticultural Areas (AVA) are geographically defined wine-grape-growing regions in the United States. The Alcohol and Tobacco Tax and Trade Bureau defines AVA boundaries. AVAs are established at the request of wineries, vineyards, or other petitioners. The State of Washington is home to 20 AVAs, each with distinct characteristics such as size, weather, soil type, and crop variety. This variation is a key factor that contributes to the success of numerous grape varieties in Washington (Washington Wine 2023b).

The Columbia Valley, Yakima Valley, Horse Heaven Hills, Goose Gap, Red Mountain, and Candy Mountain AVAs overlap with Benton County jurisdiction. Of these six AVAs, the Project Lease Boundary overlaps the Columbia Valley (entire Project Lease Boundary), Horse Heaven Hills (almost the entire Lease Boundary), and Yakima Valley (very small areas of the Project Lease Boundary). The AVAs intersected by the Project Lease Boundary are shown in **Figure 3.8-4** (Washington Wine 2023b).

The Columbia Valley AVA, established in 1984 and encompassing 59,234 acres of land under vine, is the largest AVA in Washington State and accounts for almost 99 percent of Washington State's wine grapes. Several other smaller AVAs (including Yakima Valley and Horse Heaven Hills AVAs) are located within Columbia Valley AVA (sub-appellations areas). Wine varieties in Columbia Valley AVA include riesling, merlot, chardonnay, and syrah. The following describes the Horse Heaven Hills and Yakima Valley AVAs:

- The Horse Heaven Hills AVA is among Washington's warmer growing regions. Because of the arid and semi-arid continental climate, irrigation is required in order to grow wine grapes in this AVA. Most vineyards in the Horse Heaven Hills are planted on south-facing slopes, providing extended sun exposure (Washington Wine 2023b). The Horse Heaven Hills AVA was established in 2005 and encompasses 17,082 acres of land

under vine. Wine varieties in this AVA include cabernet sauvignon, merlot, chardonnay, Riesling, and syrah. This AVA produces about 25 percent of the state's grapes.

- The Yakima Valley AVA, the state's first federally recognized AVA, was established in 1983. This AVA encompasses 18,580 acres of land under vine. Because of its diverse climate, soil conditions, and elevations, this region produces variety ranges of grapes suitable for chardonnay, merlot, carbernet sauvignon, Riesling and syrah wines.

There are approximately 25 wineries located north of the Project Lease Boundary that are open to the public. The majority of these wineries are located northeast of Benton City and southeast of West Richland. The closest wineries to the Lease Boundary are Anelare Winery in Benton City, located approximately 1 mile north of the Lease Boundary, followed by Goose Ridge Estate Winery on Dallas Road in Richland, Washington, located approximately 1.8 miles away from the Lease Boundary. The locations of these wineries are illustrated in **Figure 3.8-4**.

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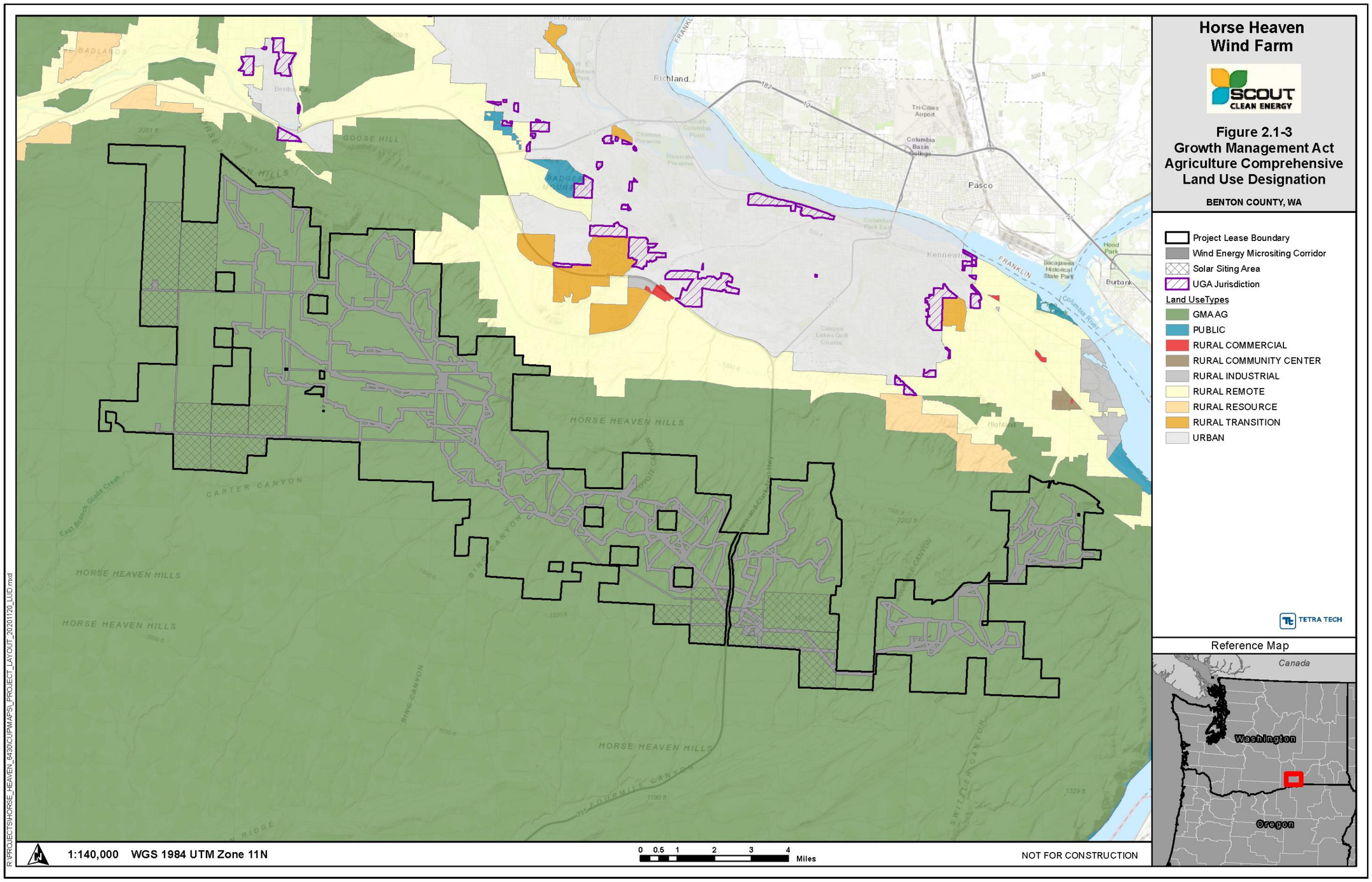
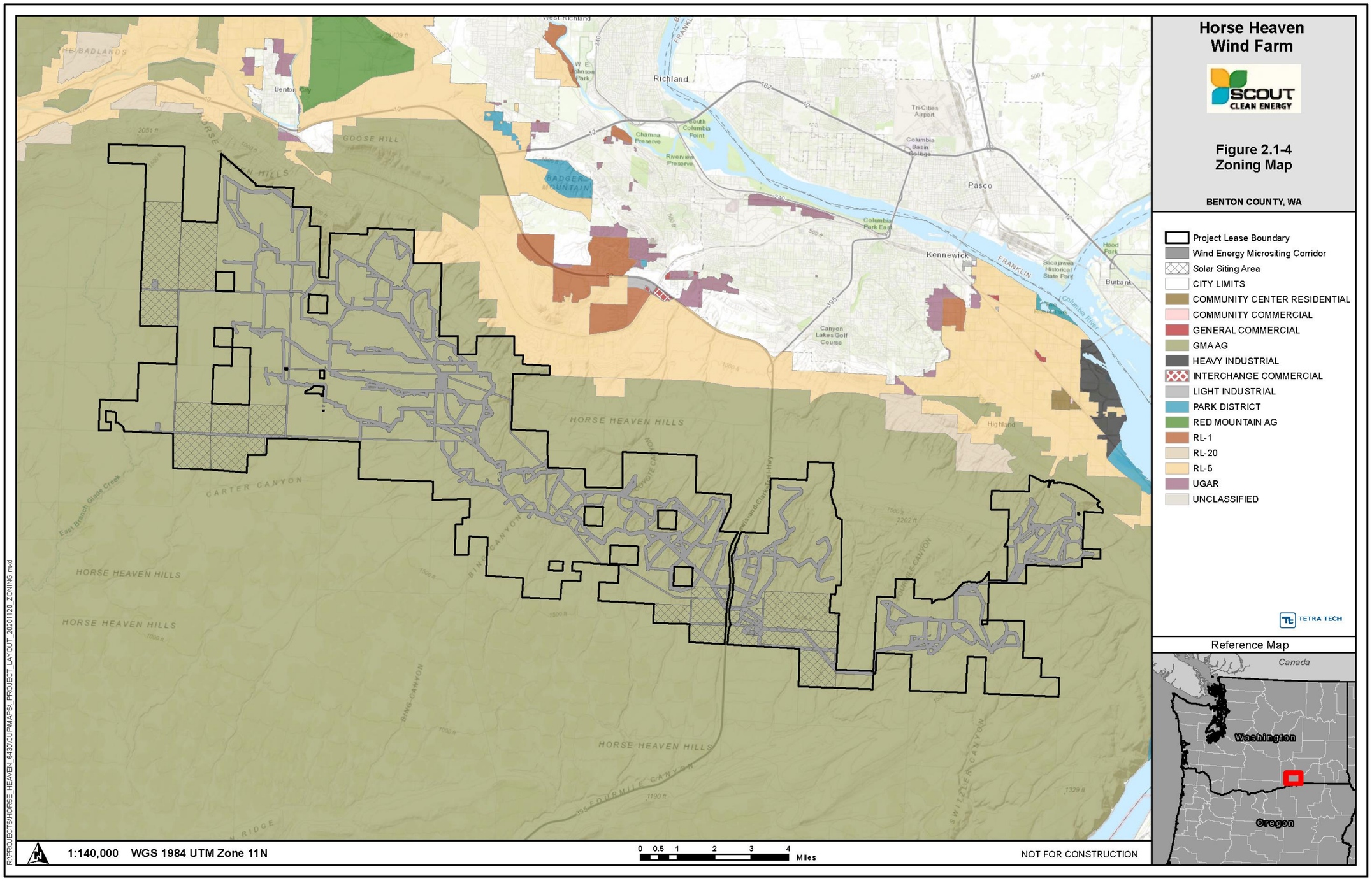


Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.8-2: Benton County, Washington Comprehensive Plan Land Use Designations



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.8-3: Benton County, Washington Project Vicinity Zoning Ordinance Map

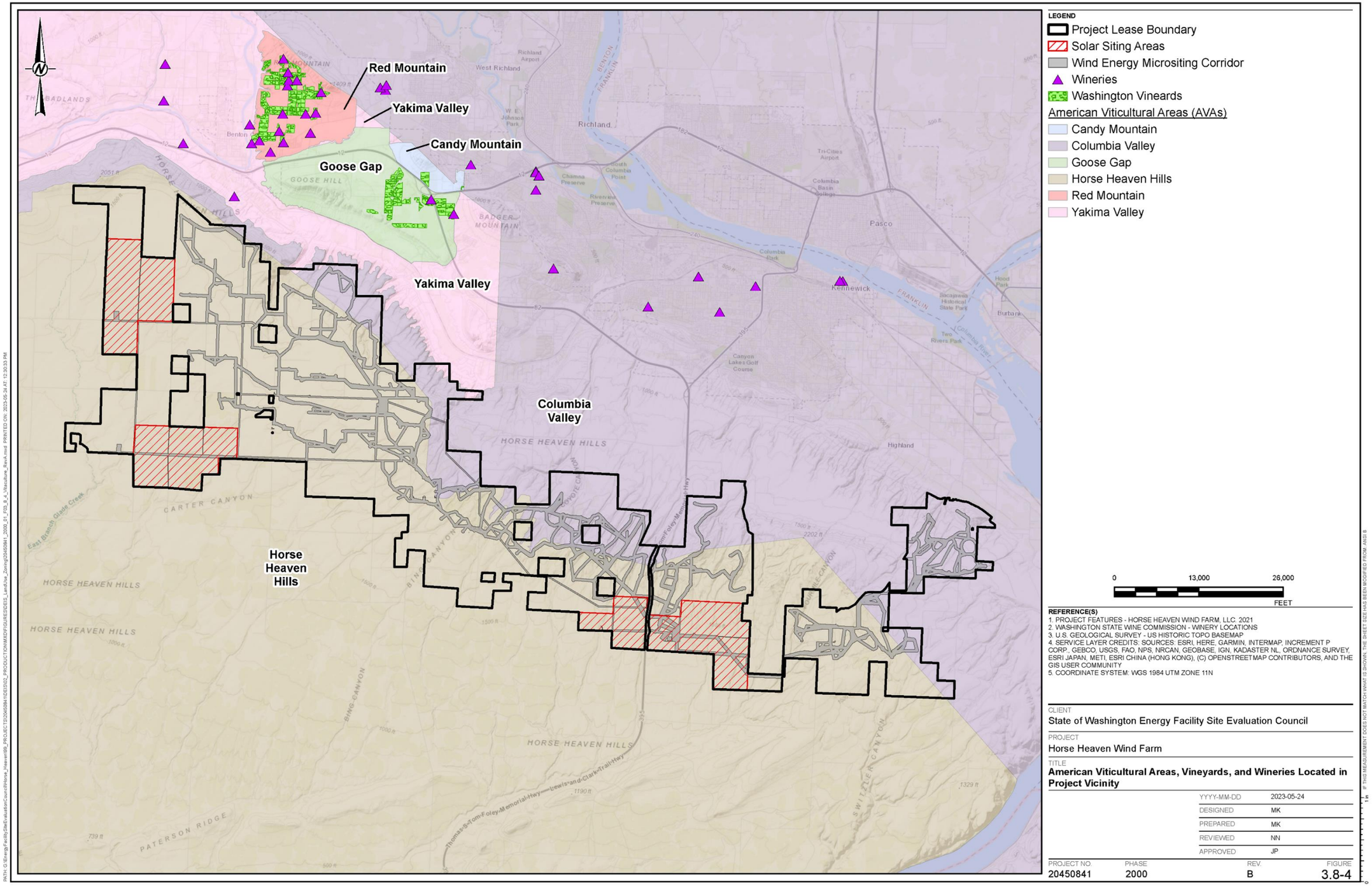


Figure 3.8-4: American Viticultural Areas, Vineyards, and Wineries Located in the Project Vicinity

3.8.2 Land Use Goals and Policies

Goals are broad statements of intent and philosophy expressing countywide values and attitudes. Goals are used as a general guide for action by the county. Policies provide the basis for decision-making and specific courses of action, which move the county toward attaining its adopted goals. Policies have a major influence because decisions, actions, and programs should neither conflict nor be inconsistent with adopted policy. **Table 3.8-4** lists the Benton County Comprehensive Plan goals and policies that are relevant to the Project.

Table 3.8-4: Applicable Benton County Comprehensive Plan Policies and Goals

Comprehensive Plan Element	Goal/Policy
Land Use	Goal 1: Ensure that land uses are compatible with surrounding uses that maintain public health, safety, and general welfare.
Land Use	Goal 1 Policy 1: Maintain a mix of land uses that support the character of each rural community.
Land Use	Goal 1 Policy 3: Maximize the opportunities for compatible development within land use designations to serve a multitude of compatible uses and activities.
Land Use - Rural Lands	Goal 6: Preserve rural lifestyles outside UGAs and incorporated areas while accommodating new population growth consistent with the protection of rural character.
Land Use - Rural Lands	Goal 6 Policy 2: Development in rural areas is typified by large lots and less dense development. Favoring development that is less dense and has larger lots helps maintain the rural character of designated rural areas and supports the protection of ground and surface water.
Land Use - Rural Lands	Goal 6 Policy 3: Designated rural areas will be utilized to reduce the inappropriate conversion of agricultural lands, prevent sprawling low-density development and assure that rural development is compatible with surrounding rural and agricultural areas.
Land Use - Rural Lands	Goal 6 Policy 14: Support and encourage the use of and application of Firewise principles and other fire risk reduction measures consistent with the Benton County Natural Hazard Mitigation Plan and Community Wildfire Protection Plan to reduce fire risk for urban development, urban subdivisions, rural subdivisions and large rural developments susceptible to wildfires. Encourage the implementation of the Firewise principles, or similar best management measures, applicable to individual lots on all lots at risk from wildfires.
Land Use - Rural Lands	Goal 6 Policy 15: Encourage new rural development away from the 100-year floodplain, and as guided by the County’s Flood Damage Prevention Ordinance, CAO, and SMP.
Natural Resources	Goal 1: Conserve and maintain agricultural land of long-term commercial significance as the local natural resource most essential for sustaining the County's agricultural economy.
Natural Resources	Goal 1 Policy 1: Conserve areas designated "GMA Agriculture" in the Comprehensive Plan for a broad range of agricultural uses to the maximum extent possible and protect these areas from the encroachment of incompatible uses.
Natural Resources	Goal 1 Policy 3: Recognize that only uses related or ancillary to, supportive of, complementary to, and/or not in conflict with agricultural activities are appropriate in areas designated GMA Agriculture.
Water Resources	Goal 1: Conserve, maintain, and manage existing ground and surface water resources to meet existing and future water supply needs for cities, farms, industry, and rural growth.
Water Resources	Goal 4: Protect and enhance surface water resources to support rivers, streams, and wetlands that support fish and wildlife species and associated habitats.

Table 3.8-4: Applicable Benton County Comprehensive Plan Policies and Goals

Comprehensive Plan Element	Goal/Policy
Critical Areas	Goal 1: Protect the functions and values of critical areas within the county with land use decision-making and development review.
Critical Areas	Goal 1 Policy 1: Apply standards, regulations, and mitigation strategies to development during the permitting and development approval process that protects critical areas functions and values.
Critical Areas	Goal 2: Protect life and property and avoid or mitigate significant risks to public and private property and to public health and safety that are posed by frequently flooded and geologic hazard areas.
Critical Areas	Goal 2 Policy 1: Limit developments in areas with higher risk for natural disaster or geologic hazard unless it can be demonstrated by the project proponent that the development is sited, designed, and engineered for-long term structural integrity and that life and property on- and off-site are not subject to increased risk as a result of the development.
Critical Areas	Goal 3: Protect the County's natural areas, shorelines, and critical areas as unique assets to the community.
Critical Areas	Goal 3 Policy 1: Use the CAO, SMP, SEPA, and other ordinances, as applicable, to designate and protect critical areas and the natural environment.
Critical Areas	Goal 5: Achieve balance among economic uses of land and critical areas protection.
Critical Areas	Goal 5 Policy 1: Work with state, federal, and local agencies and other County stakeholders regarding the application of environmental protection laws and regulations.
Economic Development	Goal 2: Expand employment opportunities in unincorporated Benton County.
Economic Development	Goal 3: Provide areas for the location of light and environmentally acceptable heavy industrial uses, while minimizing impacts on surrounding rural uses.
Economic Development	Goal 3 Policy 2: Do not locate non-agricultural related industry on "GMA Agriculture" designated land.
Parks, Recreation, Open Space, and Historic Preservation	Goal 3: Conserve visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the ice age floods.
Parks, Recreation, Open Space, and Historic Preservation	Goal 3 Policy 1: Identify and preserve historically significant structures and sites whenever feasible.
Parks, Recreation, Open Space, and Historic Preservation	Goal 4: Preserve significant historic structures, districts, and cultural resources that are unique to Benton County.
Parks, Recreation, Open Space, and Historic Preservation	Goal 4 Policy 1: Coordinate with local tribes to protect historic and cultural resources.
Parks, Recreation, Open Space, and Historic Preservation	Goal 4 Policy 2: Preserve archaeologically significant sites by siting and designing development to avoid or mitigate impacts.

Table 3.8-4: Applicable Benton County Comprehensive Plan Policies and Goals

Comprehensive Plan Element	Goal/Policy
Parks, Recreation, Open Space, and Historic Preservation	Goal 5: Identify, preserve, and protect historic, cultural, and archaeological resources found to be significant by recognized local, state, tribal or federal processes.
Parks, Recreation, Open Space, and Historic Preservation	Goal 5 Policy 1: Identify known, recorded archaeological, cultural, and historic resources.
Parks, Recreation, Open Space, and Historic Preservation	Goal 5 Policy 3: Preserve areas that contain valuable historical or archaeological sites of federal, state, tribal, or local significance including those maintained in the Department of Archaeology and Historic Preservation's database, areas known only to tribes and areas of higher risk potential. Maintain and enforce development code provisions that require conditioning of project approval on findings made by a professional archaeologist for development activities on sites of known cultural, historical, or archaeological significance.
Parks, Recreation, Open Space, and Historic Preservation	Goal Policy 4: Prior to demolition, moving, or alteration to any designated historic, cultural, and archaeological landmark, ensure that due consideration is given to its preservation or, at a minimum, documentation of its historic, cultural, or archaeological value.
Utilities Element	Goal 2: Maintain public and private household water and sewer systems that are consistent with the rural character of the County.
Utilities Element	Goal 3: Facilitate efficiency in utility land use and development.
Utilities Element	Goal 3 Policy 2: Encourage multiple uses, including passive recreational use, in utility corridors where practical.
Utilities Element	Goal 3 Policy 3: Facilitate maintenance and rehabilitation of existing utility systems and facilities and encourage the use of existing transmission/distribution corridors.

Source: Benton County 2020
CAO = Critical Areas Ordinance; GMA = Growth Management Act; SMP = Shoreline Management Program; SEPA = Washington State Environmental Protection Act; UGA = Urban Growth Area

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3.9 Historic and Cultural Resources

This section describes identified historic and cultural resources for the proposed Horse Heaven Wind Farm (Project, or Proposed Action) vicinity. Section 4.9 presents an analysis of the Project's potential impacts on historic and cultural resources. The Project Lease Boundary is situated within the Horse Heaven Hills and comprises 72,428 acres of land approximately 4 miles south-southwest of Kennewick and the Tri-Cities urban area, alongside the Columbia River in Benton County, Washington. The Area of Analysis for historic and cultural resources is the proposed Project footprint and comprises the proposed Wind Energy Micrositing Corridor of approximately 11,850 acres (of predominantly linear features, including the turbines, support infrastructure, etc.) and the Solar Siting Areas, which encompass approximately 10,755 acres within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022, p. 2-1). Project information for this EIS was obtained from the Application for Site Certification (ASC), submitted February 2021 (Horse Heaven Wind Farm, LLC 2021) and revised December 2022 (Horse Heaven Wind Farm, LLC 2022). All Project information for this EIS was confirmed based on the September 2023 revised ASC (Horse Heaven Wind Farm, LLC 2023).

Regulatory Setting

State Regulations and Guidance on Historic and Cultural Resources

Historic and cultural resources include locations of past human activities, sites of occupation, and sites of usage that contain tangible materials (archaeological sites or isolated artifacts) or structural components (architectural or above-ground resources). They may also include landscapes used, built, or modified by people and associated with a specific ethnic or tribal group for longstanding cultural purposes, entwined with belief systems that may not continue to the present (traditional cultural properties [TCPs]). The Department of Archaeology and Historic Preservation (DAHP) is the primary state agency for management of historic and cultural resources in Washington (DAHP 2023). For the purposes of this impact assessment, definitions of historic and cultural resources are derived from Washington State regulations and DAHP guidance, as follows:

- Archaeological Resources: According to Washington Administrative Code (WAC) 25-48-020(10), archaeological resources are defined as "any material remains of human life or activities which are of archaeological interest, including all sites, objects, structures, artifacts, implements, and locations of prehistorical or archaeological interest, whether previously recorded or still unrecognized." Archaeological resources include sites and isolates with precontact and/or historic-period components.
  - Precontact period archaeological resources (sites and isolates) include lithics (modified stone artifacts—e.g., bifaces, flake tools, projectile points, cores, and debitage); ground stones produced for grinding food (e.g., pestle and mortar); camps (short-term occupation sites); villages (clusters of dwellings); house pits (dwellings partially dug into the ground); trails associated with significant destinations (routes or pathways); cairns or rock piles that may mark a burial or other feature; and burials containing human remains and funerary objects (DAHP 2003).
  - Historic-period archaeological resources (sites and isolates) include homesteads, debris scatter, townsites, roads, cemeteries, religious property, and agricultural features (DAHP 2003).

- **Historic Archaeological Resources:**[22] These are properties that are listed in or eligible for listing in the Washington State Register of Historic Places (Revised Code of Washington [RCW] 27.34.220) or the National Register of Historic Places (NRHP), per WAC 25-48-020(11). Historic properties are typically 50 years of age or older (Wilkerson et al. 2004). They can include archaeological sites, architectural resources, and TCPs.
- **Architectural Resources:** These include extant elements of the built environment, such as buildings, structures, sites, districts, and objects. Architectural resources are distinct from historic features that are in ruin (DAHP n.d.). For the Lease Boundary, these may include farmsteads and associated structures (e.g., grain towers) and roads, railways, or other historic-period infrastructure (e.g., transmission lines).
- **Traditional Cultural Properties:** TCPs include features of tribal significance and cultural and/or religious importance and may present as natural features entwined with cultural values. A TCP, as broadly defined by DAHP, may be "a distinctive natural site, such as a mountaintop, or a historic environment, such as an ethnic neighborhood, or it may simply be a place with significant historic value to a specific ethnic or cultural group…based upon historic cultural beliefs, customs, or practices which may or may not continue to the present" (Wilkerson et al. 2004). A TCP may also include a viewshed and associated landscape elements. Examples of TCPs (as adapted from the National Register Bulletin 38) include:
  - A significant location associated with the traditional beliefs of a tribe in relation to its origin or cultural belief system
  - A long-term, rural community whose land usage reflects longstanding cultural traditions
  - An urban neighborhood that is the traditional home of a particular cultural group and that reflects its beliefs and practices
  - A location where religious practitioners have historically gone, and are known to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice
  - A place where a community has traditionally carried out economic, artistic, or other cultural practices important in maintaining its historic identity (NPS 1992)

RCW 27.44.040(1) (Indian Graves and Records) states: "Any person who knowingly removes, mutilates, defaces, injures, or destroys any cairn or grave of any native Indian, or any glyptic or painted record of any tribe or peoples is guilty of a class C felony." Further, RCW 27.44.040(1) mandates that inadvertent grave disturbance through construction or other activities requires re-interment under the supervision of the appropriate Indian tribe.

RCW 27.53.060 (Archaeological Sites and Resources) states that a DAHP permit may be required in the event of archaeological resource alteration/disturbance on private or public land. All precontact period sites and multicomponent sites with precontact cultural materials require DAHP-issued permits prior to any disturbance, regardless of their NRHP status. As such, precontact sites are protected by RCW 27.53. A permit is required for any disturbance to historic-era sites that are eligible for listing on national, state, or local registers. WAC 25-48 (Archaeological Excavation and Removal Permit) serves as the implementing rule for RCW 27.53 and outlines the

[22] To avoid confusion between historic-period archaeological resources and historic archaeological resources, this document does not use the latter term. Any NRHP-listed or eligible properties should be understood to be historic archaeological resources, per WAC 25-48-020(11).

procedures for application and review for Archaeological Excavation and Removal Permits. WAC 25-48 also stipulates how the state archaeologist, or the assistant state archaeologist, may impose civil penalties.

RCW 68.60 (Abandoned and Historic Cemeteries and Historic Graves) establishes regulatory definitions for abandoned cemeteries, historical cemeteries, and historic graves and outlines their statutory protections. RCW 68.60.055 mandates that the coroner and local law enforcement must be notified immediately of any discovery of skeletal human remains. Upon discovering skeletal human remains all ground-disturbing activity must stop immediately, and the area must be protected from further disturbance until authorized by the appropriate authorities. Time-sensitive responsibilities for the coroner, DAHP, the state physical anthropologist, and affected tribes are also identified in RCW 68.60.055.

The Washington Energy Facility Site Evaluation Council (EFSEC) is the regulatory authority for the Project and is tasked with evaluating the Project's compliance with the Washington State Environmental Policy Act (SEPA). The cultural resources provisions under SEPA require that historic and cultural resources within or adjacent to a project area should be identified consistent with RCW 27.53, and project-related impacts on those resources must be assessed (WAC 197-11-960). In its SEPA guidance, DAHP states that, "resources on the subject or adjacent property, should be evaluated for their eligibility at the local, state and/or national register level" (DAHP n.d.).

Federal Regulations

The NRHP is authorized by the National Historic Preservation Act of 1966, as amended (Title 36 Code of Federal Regulations [CFR] Part 800). The NRHP serves as a process by which historic and cultural resources are identified, evaluated, and protected (NPS 2022). As codified in 36 CFR 60.4, a historic or cultural resource is eligible for the NRHP if it is significant under one or more of the following criteria:

A. Association with events that have made a significant contribution to the broad patterns of our history;

B. Association with the lives of persons significant in the past;

C. Embodiment of the distinctive characteristics of a type, period, or method of construction, representation of the work of a master, possession of high artistic value, or representation of a significant or distinguishable entity whose components may lack individual distinction; or

D. Has yielded, or is likely to yield, information important in prehistory or history.

In addition to being found significant under at least one of the criteria listed above, a resource also must possess integrity to be eligible for listing in the NRHP (NPS 1997; Hardesty and Little 2000). Integrity is assessed after a property's significance is evaluated and includes seven aspects: location, design, setting, materials, workmanship, feeling, and association (NPS 1997).

Methodology

Horse Heaven Wind Farm, LLC's (the Applicant's) consultant, Historical Research Associates, Inc. (HRA), completed several cultural resources studies for the Project in 2020 and 2021 to identify historic and cultural resources (including cultural landscape elements) (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021; Tuck et al. 2023). The HRA studies contain sensitive and confidential information on cultural resources, and redacted versions of the cultural resource studies were included in the 2022 ASC for public use. The HRA cultural resources studies included archival and records research, archaeological survey (pedestrian field survey), architectural survey, and archaeological investigation (subsurface testing). HRA did not conduct randomized subsurface sampling for the Project.

In addition to archival research and field investigations, HRA conducted tribal outreach, which consisted of requesting information via phone call, letter, and email from affected Tribes (the Confederated Tribes and Bands of the Yakama Nation [Yakama Nation], Confederated Tribes of the Umatilla Indian Reservation [CTUIR], the Nez Perce Tribe [Nez Perce], and the Wanapum Tribe) concerning the Project's Area of Analysis. By definition, formal government-to-government tribal consultation is not within the purview of the Applicant, or its cultural resources consultant, and none of HRA's tribal outreach activities should be considered consultation that fulfills government agency responsibilities to consult under federal or state cultural resource regulations.

Six unpublished, confidential reports detail the results of the studies conducted by HRA on Washington State Department of Natural Resources (DNR) land (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021) and private land (Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021; Tuck et al. 2023). Davis, Jones, et al. (2021) is a finalized report for cultural resources surveys on private land and replaces an earlier draft (Davis, Jones, et al. 2020).

Cultural resources studies, including those conducted by HRA for the Project in 2020, 2021, and 2022, employ a variety of investigative techniques to identify and evaluate historic and cultural resources. Historic architectural methods include archival research, pedestrian survey, and historic structure documentation. Archaeological methods include background research and field investigation, which entails visual surface inspection (pedestrian survey) and/or subsurface testing (shovel testing and test unit excavation). It should be noted that no archaeological field investigation is wholly comprehensive. Archaeological field methods rely on sampling that can produce a bias in results. Systematic pedestrian surveys and subsurface testing are designed to limit bias and increase the amount of area investigated. Randomized subsurface sampling can be used to limit the bias for cultural materials present on highly visible ground surfaces. Nonetheless, biased results can still arise due to differences in how materials are preserved over time, unintentional preferences for the types of cultural resources that are identified, and the ease of access to some cultural resources over others.

Prior to commencement of the pedestrian survey phases, HRA reviewed the Lease Boundary and the available Project description to refine areas to be targeted for pedestrian field surveys (within the Area of Analysis). This included a review of local geomorphological and hydrological conditions; the precontact, ethnographic, and historic contexts of the landscape; previously recorded cultural resources; and the likelihood that recent disturbance has impacted historic and cultural resources (e.g., through agriculture and construction activities). HRA also considered the statewide predictive model developed by DAHP, which uses environmental variables to create areas of high, moderate, and low potential for cultural resources (Kauhi and Markert 2009). DAHP's statewide predictive model maps much of the Lease Boundary as Low Risk. However, there are several limited areas shown as Low to Moderate, Moderate, or High Risk, particularly along the periphery of the Lease Boundary to the northeast and northwest (Davis, Tuck, et al. 2021). High Risk areas are considered the most archaeologically sensitive, with a higher potential for identifying archaeological sites during development (Kauhi and Markert 2009).

It should be noted that the DAHP predictive model is based on several variables, including elevation, level landforms, and proximity to modern water sources. For this reason, the settings for certain cultural resource types, such as rock cairns, talus features, trails, pictographs, lithic scatters, as well as other sites that represent gathering and hunting practices that are found on slopes far from water resources, are not captured as High Risk areas by the predictive model. As with sampling limitations of archaeological methods, discussed above, the DAHP predictive model cannot predict the location or existence of all cultural resource types. Neither the

predictive model nor the archaeological methods should be interpreted as the definitive way to identify the presence of cultural resources within the Project's Area of Analysis.

Informed by the results of the initial archival research and dialogue with the affected Tribes, HRA conducted targeted pedestrian surveys within the Area of Analysis between 2020 and 2021 (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021). These field investigations involved systematic pedestrian survey along transects spaced at 66-foot (20-meter) intervals (Davis, Jones, et al. 2021). Where historic and cultural resources were identified, a more intensive survey and inspection was conducted to delineate the resource boundaries and record artifacts and/or features where present. Approximately 105 acres were not accessible due to steep slopes or restricted access (Horse Heaven Wind Farm, LLC 2023). HRA recommended no cultural resources survey of these locations because either the locations have limited potential for historic or cultural resources, or no Project activities were planned for the un-surveyed locations (Davis, Tuck, et al. 2021, p. i). In 2021 and 2022, HRA conducted archaeological fieldwork to evaluate five historic-period sites for NRHP eligibility under DAHP-issued archaeological excavation permits (2021-74, 2022-21, and 2022-22) (Tuck et al. 2023). The archaeological resources identified and evaluated by HRA are summarized in Section 3.9.2.1.

As of June 2022, HRA reported 41 archaeological resources in the Project Area of Analysis, including 29 sites and 12 isolates. Ten historic-period isolates and seven historic-period sites have been recommended as not eligible for the NRHP (Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021; Tuck et al. 2023). Nineteen historic-period archaeological sites and the historic component of one multicomponent site have not been evaluated for NRHP eligibility. Two precontact archaeological sites and the precontact component of one multicomponent site are protected by RCW 27.53.060. Avoidance or coordination with DAHP and interested Tribes is recommended for two precontact archaeological isolates (Davis, Tuck, et al. 2021, p. ii).

HRA identified and provided NRHP eligibility recommendations for 11 architectural resources in the Area of Analysis between 2020 and 2022 (Davis, Burk-Hise, and Henderson 2020; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021). Davis, Tuck, et al. (2021, p. ii) state that seven architectural resources were identified within the Area of Analysis, including Nicoson Farmstead and 17302 County Well Road. Nicoson Farmstead consists of two architectural resources, and 17302 County Well Road comprises four architectural resources. However, HRA reported Nicoson Farmstead and 17302 County Well Road as single entities. To remain consistent with architectural resource records in the Washington Information System for Architectural and Archaeological Records Data (WISAARD), Section 3.9.2.2 and **Table 3.9-2** describe the 11 architectural resources individually.

DAHP Consultation

EFSEC is in consultation with DAHP regarding historic and cultural resources for the Project. DAHP reviewed the cultural resource survey reports completed for the Project between 2020 and 2021 (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021) in an initial letter (Hanson 2021a) and in a revised letter to EFSEC dated December 10, 2021 (Hanson 2021b). In January 2023, DAHP reviewed the Historic Property Inventory Forms submitted by HRA for the Project (Elenga 2023). DAHP also reviewed the archaeological testing report by Tuck et al. (2023) for five historic-period sites in a letter to EFSEC dated May 18, 2023 (Witt 2023).

The 2021 and 2023 letters state that DAHP concurs with the NRHP eligibility recommendations for all 41 archaeological resources located within the Area of Analysis (Hanson 2021b; Witt 2023). Section 3.9.2 (Historic

and Cultural Resources Identified) describes the archaeological resources and their eligibility status, and **Table 3.9-2** lists the NRHP eligibility and/or status of all historic and cultural resources for the Project.

DAHP's revised letter dated December 10, 2021, states that the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b). In addition, DAHP reviewed Historic Property Inventory Forms for six architectural resources in a letter dated January 25, 2023 (Elenga 2023). DAHP's NRHP eligibility determinations are listed in WISAARD for all 11 architectural resources identified in the Area of Analysis (WISAARD 2022a, 2022b, 2022c, 2022d, 2023a, 2023b, 2023c, 2023d, 2023e, 2023f, 2023g).

In addition to the consultation with EFSEC, DAHP also engaged in consultation with Benton County regarding historic and cultural resources for the Project. In a letter dated May 26, 2020, DAHP reviewed the cultural resource survey report by Davis, Burk-Hise, and Henderson (2020) and concurred with HRA's recommendations (Hanson 2020).

Tribal Consultation

Consultation between EFSEC and the Yakama Nation began in March 2023. Consultation between EFSEC and CTUIR began in April 2021, when CTUIR requested consultation with EFSEC via letter. EFSEC sent a response letter dated April 29, 2021. CTUIR commented on the scoping for the Project and ultimately worked with Applicant to come to an agreement.

3.9.1 Affected Environment

This section summarizes the historic and cultural context applicable to the Area of Analysis and surrounding Lease Boundary. The cultural chronology of the region is broadly characterized by changing settlement patterns and subsistence strategies, evidenced in material cultural remains from the precontact period through the historic period.

3.9.1.1 Precontact Background

The Project would be located in the Columbia Basin physiographic province, comprising the south-central portion of the larger Columbia Plateau (Plateau) that encompasses much of the Pacific Northwest region. The chronological sequence of precontact history within the Lease Boundary includes the Palaeoarchaic period (pre-11,000 to 8000 before present [B.P.[23]]), Early Archaic period (8000 to 5000 B.P.), Middle Archaic period (5000 to 2000 B.P.), and Late Archaic period (2000 to 250 B.P.). Precontact resources are protected by the RCW (see Section 3.9.1). These chronological sequences are summarized below.

Palaeoarchaic Period

This period is represented by diagnostic lithic tools. In the Columbia Basin region, these are primarily associated with either the Western Clovis Complex (defined as a projectile with a prominent "flute" or flake scar at its base) or the Western Stemmed Tradition (large lanceolate, stemmed, and shouldered bifaces) (Davis, Burk-Hise, and Henderson 2020). The socioeconomic structure of Palaeoarchaic people of the interior Plateau was likely centered around a mobilized subsistence strategy, including fishing, gathering, and hunting of large game.

[23] Before present, with present set at 1950 by convention.

Early Archaic Period

This period is largely represented by a greater variety of projectile point artifacts (including dart points, leaf-shaped or lanceolate Cascade Points, bone needles, harpoons, and awls). Cobble choppers, bola stones, beads, multi-faced burins, milling stones (manos), and knives (including ovate bifaces, crescents, and scrapers) are also associated and reflective of developing technologies in support of highly mobilized (and seasonal) hunter-gatherer groups, exploiting an increasingly wider resource base.

Middle Archaic Period

This period is represented by shell beads, hopper mortars, pestles, and an absence of cores and edge-ground cobbles, reflective of increased sedentism (i.e., living in one place for an extended time) and trading opportunities. During this transitional period, habitation sites become larger, located near locations with dense and reliable subsistence resources, with more intensive food processing and storage mechanisms (Davis, Jones, et al. 2021).

Late Archaic Period

This period is represented by cobble tools, fishing equipment (net weights and composite harpoons), and mortars and pestles, but relatively low frequencies of projectile points. Pithouses provide evidence of widespread sedentism and social stratification, with an increasing reliance on riverine resources observed through the faunal assemblage and land use pattern in the region.

3.9.1.2 Ethnographic Background

As described, the Horse Heaven Hills and surrounding region have long been inhabited, with the hills and watercourses providing natural boundaries between distinctive tribal groups. The exact customary and ancestral boundaries of Indigenous groups, however, are not always clearly defined, with neighboring groups utilizing the landscape within the Project vicinity for hunting, fishing, gathering, and longstanding cultural purposes.

Among the many tribal groups that utilized the Project vicinity historically are the Yakama, Umatilla, Cayuse, Walla Walla, and Nez Perce Tribes, who spoke various dialects of the Sahaptin language-group (Davis, Burk-Hise, and Henderson 2020). Due to their geographic location, the Yakama, Umatilla, Walla Walla, Cayuse, and Nez Perce resided in the center of a great trade network for thousands of years, stretching from the Pacific Ocean to the Great Plains, and south to the Great Basin. Like most Plateau and Columbia Basin groups, the Umatilla, Walla Walla, Cayuse, Yakama, and Nez Perce hunted terrestrial game, fished from the rich waterways, and gathered both edible and medicinal plants on a seasonal round basis. The introduction of the horse transformed the interactions of many Indigenous groups in the Plateau area. As trading grounds became more accessible and trading more regular, the traditional seasonal round was gradually altered (Davis, Jones, et al. 2021).

Ethnographic research has identified several places within the Area of Analysis and its vicinity that have been associated with the Yakama, Umatilla, Cayuse, Walla Walla, and Nez Perce Tribes. These places include riverine village sites, fishing locations, and areas where groups gathered to trade and socialize. Native communities also identified significant places that could be used for grazing horses, resource gathering, and wayfinding by means of prominent landscape features. The names of significant places often describe important past events or communicate information about resources or dangers associated with certain areas (Davis, Jones, et al. 2021).

3.9.1.3 Recent Historic Background

The Horse Heaven range is referenced in William Clark’s journal of 1805, when the Lewis and Clark expedition moved into the region, camping near the confluence of the Snake and Columbia Rivers (Davis, Burk-Hise, and Henderson 2020). Early European settlement in the Washington area was primarily driven by the expansion of the

fur trade, with the first wave of emigrants journeying across the Oregon Trail in the 1840s. In the mid-19th century, nonnative settlements were further developed through the arrival of Presbyterian missionaries, continuing into the 1880s.

The impact of these newly arrived emigrants on the Indigenous population and their settlement of Native American land was a cause of tension, resulting in U.S. government-prepared treaties to provide land for consolidated tribal populations and expand the areas of nonnative settlement. In 1855, the United States government conducted treaty negotiations at Camp Stevens with certain Plateau tribes. The Cayuse, Umatilla, and Walla Walla reserved about 500,000 acres and ceded 6.4 million acres through the Treaty of June 9, 1855 (Davis, Burk-Hise, and Henderson 2020). The Treaty with the Yakama Nation signed June 9, 1855, and ratified March 8, 1859, ceded nearly 11 million acres of land in exchange for 1.2 million acres of reservation land (Columbia River Inter-Tribal Fish Commission 2021). On June 11, 1855, the Nez Perce Tribe signed a treaty that reduced their territory from 13 million acres to a 7-million-acre reservation.

Another treaty with the Nez Perce in 1863 (at Lapwai, Idaho) further reduced the reservation to 757,000 acres. The Lapwai Treaty became known as the “thief” or “steal” treaty, creating animosity that eventually led to armed clashes between the Nez Perce and the U.S. Army in 1877 (NPS 2020). Reserved lands were nevertheless opened for nonnative settlement in 1895, and this, along with other factors, including the discovery of gold, reduced Nez Perce land further to less than 100,000 acres by the late 19th century.

As part of the 19th-century treaty agreements, the tribes agreed to relinquish title to their lands while maintaining their traditional rights on lands outside of reservations. Treaty rights are particular to the individual treaties and variously include hunting, fishing, gathering, and pasturing animals (Davis, Burk-Hise, and Henderson 2020). Tribal access to public lands under treaties is a complex issue; the maintenance of continued safe access to cultural sites (during Project activities) is considered in Chapter 4.9.

Nonnative settlers also had devastating impacts on the local tribal population in the Columbia River valley area through the transmission of new diseases. Spurred by the lack of treaty enforcement (and treaty violations), native groups throughout the Plateau region began to fight against outside intrusion, resulting in the Indian Wars of 1855 to 1858 (Davis, Jones, et al. 2021). Conflicts between native people, settlers, and the U.S. government lasted until the 1870s in the American West and were confined, for the most part, to the years 1855 to 1858 in the area of the Project vicinity (Davis, Burk-Hise, and Henderson 2020).

In the mid-19th century, low cattle stock prices meant that ranching was unprofitable, and tribal conflict was high. The development of the Northern Pacific railroad, however, from the Midwest to the Pacific Ocean in the 1870s, opened the area up to more intensive emigration, and the population increased rapidly through to the end of the century (Davis, Burk-Hise, and Henderson 2020). Agriculture, irrigation, and infrastructure services were developed in support of the growing farming community. A number of related features, including farmsteads, farm equipment, and a grain tower, have been located in the Area of Analysis. In 1937, the Bonneville Power Administration (BPA) was created, and public power was provided to residents in the Pacific Northwest. Two BPA transmission lines built in the mid-20th century cross the Lease Boundary (Davis, Burk-Hise, and Henderson 2020). In the mid- to late 20th century, nonnative settlement increased dramatically in the region, in response to the development of the Hanford nuclear facility. The nuclear production site was built in 1943, comprising nine former plutonium reactors in the vicinity of Hanford, a small farming community. People from all over the United States came to Hanford, forming a 51,000-person workforce (Gerber 1993). The reactors ceased in 1987, with large-scale land remediation ongoing to the present day (Gerber 1993).

Kramer (2012) developed an NRHP Multiple Property Documentation (MPD) for architectural resources related to the BPA Pacific Northwest Transmission System. The MPD defines the period of significance, property types, eligibility requirements, and integrity considerations for resources evaluated as part of the BPA Pacific Northwest Transmission System (Davis, Tuck, et al. 2021).

Lindeman and Holstine (1988) authored an NRHP MPD for architectural resources related to grain production in eastern Washington. The MPD defines the period of significance and the property types and eligibility requirements and integrity considerations for resources evaluated as part of the history of eastern Washington grain production (Davis, Tuck, et al. 2021).

3.9.1.4 Applicant Communications with Tribes and Agencies

As stated above, formal government-to-government tribal consultation is not within the purview of the Applicant or its cultural resources consultant. Communications with tribes by an applicant or consultant cannot be considered consultation that fulfills government agency responsibilities to consult under federal or state cultural resource regulations (54 U.S. Code [U.S.C.] 306108; 54 U.S.C. 302706 [b]; WAC 197-11-960 [B][13]).

Table 1.12-2 in the Final ASC identifies the dates, participants, and topics discussed during the Applicant's outreach to the Tribes and applicable agencies (Horse Heaven Wind Farm, LLC 2023). All communications between the Applicant, Tribes, and agencies pre-date the submission of the ASC, which was submitted in February 2021. Informal staff-to-staff communication began on March 9, 2021, with a notice of public meeting sent to the Tribes.

Applicant outreach to the Tribes began in 2018 by Scout Clean Energy LLC, the indirect owner of 100 percent of Horse Heaven Wind Farm, LLC. Communication with DAHP began in 2019. Tribal outreach and agency communication conducted by the Applicant and its consultants continued through November 2022 (Horse Heaven Wind Farm, LLC 2022, Table 1.12-2).

3.9.1.5 Previous Surveys within the Lease Boundary

Given the large geographic extent of the Lease Boundary, the majority of the area has not been subject to historic and cultural resources survey prior to HRA's investigations in relation to the Project in 2020, 2021, and 2022 (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020; Tuck et al. 2023). Twenty-seven cultural resource studies have been conducted within the Lease Boundary. These surveys were identified through a review of records maintained by DAHP in WISAARD; the resources identified by these previous surveys are summarized in **Table 3.9-1** and include two archaeological resources and eight architectural resources. Five of the previously identified historic and cultural resources are within the Area of Analysis (see **Table 3.9-1**). The five resources located within the Area of Analysis (i.e., proposed Project footprint) are discussed in Section 3.9.2.

Table 3.9-1: Previously Identified Resources within the Project Lease Boundary

ID # or Site #	Resource Type	Within Area of Analysis?
45BN205	Archaeological (Historic-Period Site)	Yes
45BN261	Archaeological (Precontact Site)	Yes
667765 (Nine Canyon Road)	Architectural	Yes
721665 (McNary–Badger Canyon No. 1 Transmission Line)	Architectural	Yes

Table 3.9-1: Previously Identified Resources within the Project Lease Boundary

ID # or Site #	Resource Type	Within Area of Analysis?
721666 (McNary–Franklin No. 2 Transmission Line)	Architectural	Yes
12851 (Edwards Homestead)	Architectural	No
12852 (Bentley Homestead)	Architectural	No
12977 (Horse Heaven Hills Cemetery)	Architectural	No
575328 (Owens Road)	Architectural	No
667226 (Kennewick Main Canal Division IV – Yakima Project)	Architectural	No

Sources: Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021

3.9.2 Historic and Cultural Resources Identified

The pedestrian survey, limited to the proposed Project design (the Area of Analysis), was undertaken by HRA during 2020 and supplemented in 2021 (to cover additional survey areas not previously accessible) (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021). Within the Area of Analysis (including both the private land and land owned by DNR), HRA reported 52 resources, including the four identified from previous studies (Section 3.9.2.5). Forty-one of these resources are archaeological, and 11 are architectural. The historic and cultural resources are summarized below according to their type (archaeological or architectural) and period (precontact or historic) and listed in **Table 3.9-2.**

3.9.2.1 Archaeological Resources

As of 2022, 41 archaeological resources have been identified in the Area of Analysis. The following descriptions are presented alphanumerically by resource number. All archaeological resources are listed in **Table 3.9-2**. NRHP eligibility determinations for historic-period resources and recommendations for precontact period resources in the following summary are based on DAHP concurrence letters (Hanson 2021b; Witt 2023). The Yakama Nation has requested avoidance of archaeological resources (Lewis 2023).

3.9.2.1.1 Precontact Period Archaeological Resources

Five precontact period resources, including three archaeological sites and two isolates, have been identified in the Area of Analysis for the Project. These are discussed below and summarized in **Table 3.9-2**. Precontact sites **45BN261** and **45BN2090** were documented during the pedestrian survey. Precontact isolates **45BN2092** and **45BN2146** were identified through shovel testing. Site **45BN2153** was identified through pedestrian survey and includes both precontact and historic cultural materials (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021).

Precontact Site **45BN261** was originally recorded in 1980 and was revisited in 2007 and 2013 (Davis, Jones, et al. 2021). The location of **45BN261** was verified during HRA's pedestrian survey in 2021. The Yakama Nation indicated that this precontact site is directly associated with a TCP (Davis, Jones, et al. 2021, p. 4). The site has not been evaluated for NRHP eligibility. As a precontact site, it is protected under RCW 27.53, and a DAHP permit is required prior to disturbance.

Precontact Site **45BN2090** was identified through pedestrian survey (Davis, Jones, et al. 2021). As a precontact site, it is protected under RCW 27.53, and a DAHP permit is required prior to disturbance (Davis, Jones, et al. 2021, p. ii). DAHP concurred with HRA's recommendation to avoid the site (Davis, Jones, et al. 2021; Hanson 2021b).

Isolate **45BN2092** is a projectile point that likely predates 2000 B.P. (Davis, Tuck, et al. 2021, p. 56). Radial shovel probes were negative for cultural materials (Davis, Tuck, et al. 2021, p.58). As a precontact isolate, **45BN2092** is not protected by RCW 27.53, and a permit is not required prior to disturbance. Davis, Tuck, et al. (2021) recommend either avoidance of Isolate **45BN2092** or coordination with the interested Tribes and DAHP to determine if the Tribes would like the isolate collected prior to construction (Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021; Hanson 2021b). DAHP concurred with HRA's recommendation (Hanson 2021b).

Isolate **45BN2146** consists of a single projectile point that post-dates 110 B.P. (Davis, Tuck, et al. 2021). Radial shovel probes confirmed the isolated nature of the find, and the resource is not protected by RCW 27.53. Davis, Tuck, et al. (2021) recommend either avoidance of Isolate **45BN2146** or coordination with the interested Tribes and DAHP to determine if the Tribes would like the isolate collected prior to construction. DAHP concurred with HRA's recommendation (Hanson 2021b).

The precontact component of Site **45BN2153** consists of an isolated artifact. The precontact component is protected under RCW 27.53, and a DAHP permit is required prior to disturbance (Davis, Tuck, et al. 2021, p. 51). DAHP concurred with HRA's recommendation to avoid the site (Davis, Tuck, et al. 2021; Hanson 2021b).

3.9.2.1.2 Historic-Period Archaeological Resources

Thirty-seven historic-period archaeological resources have been identified in the Area of Analysis during the pedestrian survey phase, comprising 26 sites, 10 isolates, and the historic component of one multicomponent site (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021). The historic-period archaeological resources are summarized in **Table 3.9-2**.

The majority (n=18) of the historic-period archaeological sites consist of a variety of surface artifacts associated with late 19th- and early 20th-century agricultural activity. Upon locating these sites, HRA mapped their extent and assessed the potential for any subsurface remains while considering the type and density of the surface material and their likely association with any earlier structures (e.g., 19th-century homesteads visible on historic mapping and/or aerial imagery). The historic archaeological sites identified in the Area of Analysis include farmstead remains, field stones, agricultural equipment, historic refuse scatters, and historic infrastructure remains. Where a particularly high density of surface materials was observed by HRA, and where further research or historic mapping identified homesteads or other structures in their vicinity, further archaeological work prior to the evaluation of the site for listing in the NRHP has been recommended (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021).

Single isolates were generally evaluated to have limited significance or potential for further additional information (e.g., isolated pieces of trash, removed from their wider context). Historic-period isolates documented by HRA from 2020 to 2021 within the Area of Analysis were determined not eligible for listing in the NRHP (Hanson 2021b).

Site **45BN205** was documented as a historic-period surface scatter in 2020 (Davis, Tuck, et al. 2021). Previous archaeological work at this site in 1975 identified structural remains. Although large pieces of wagon debris were identified during the 2020 field survey, no structures were observed (Davis, Tuck, et al. 2021, p. 184). Site

45BN205 has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Archaeological resources **45BN2081, 45BN2082**, **45BN2083**, and **45BN2084** are historic-period isolates. All four have been determined not eligible for listing in the NRHP due to a failure to convey significance under any of the criteria, and a lack of integrity (Davis, Jones, et al. 2021; Hanson 2021b).

Site **45BN2085** is a large historic debris scatter dating to the early 20th century. The site has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Jones, et al. 2021; Hanson 2021b).

Davis, Jones, et al. (2021) recorded Site **45BN2086,** a historic-period debris scatter, in 2020. The site was evaluated for NRHP eligibility using archaeological testing under DAHP Permit 2021-74 and recommended not eligible (Tuck et al. 2023). DAHP concurred with the eligibility recommendation in a letter dated May 18, 2023 (Witt 2023).

Site **45BN2087** comprises a historic-period debris scatter located in a fallow wheat field east. A variety of surface artifacts were recorded, including glass, ceramic, brick, and metal, amounting to 63 pieces in total. Historic maps show a building located 0.1 miles (0.16 kilometers [km]) southwest of the site and a more clearly marked building 0.6 miles (1 km) to the southwest (Davis, Jones, et al. 2021, p. 142). It was determined that the historic-period archaeological site cannot be evaluated for listing in the NRHP without further archaeological investigation.

Site **45BN2088** is a historic-period surface scatter of glass, metal, and decorated ceramic artifacts dating to the mid-19th to early 20th century (Davis, Jones, et al. 2021). Tuck et al. (2023) evaluated Site **45BN2088** for NRHP eligibility using archaeological testing under DAHP Permit 2022-22 and recommended the site not eligible (Tuck et al. 2023). DAHP concurred with the eligibility recommendation in a letter dated May 18, 2023 (Witt 2023).

Site **45BN2089** is a surface scatter dating to the early 20th century. Reviews of historic mapping and aerial imagery did not directly associate the site with an earlier farmstead, though a building is 0.2 miles (0.3 km) to the south at the edge of a canyon in 1917 (Davis, Jones, et al. 2021). The site has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Isolate **45BN2091** is a single, fragmented stoneware vessel. Given the isolated nature of the find, its location in a disturbed agricultural field, and the absence of significant historical development in the vicinity, the isolate was determined not eligible for listing in the NRHP (Davis, Jones, et al. 2021; Hanson 2021b).

Site **45BN2093** was documented through pedestrian survey in 2020 and 2021 and consists of historic-period structural remains and artifacts (Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021). The site was evaluated for NRHP eligibility using archaeological testing under DAHP Permit 2021-74 and recommended not eligible (Tuck et al. 2023). DAHP concurred with the eligibility recommendation in a letter dated May 18, 2023 (Witt 2023).

Isolate **45BN2138** appears to represent a single episode of discarded trash associated with agricultural or residential use, possibly in the late 19th or early 20th century. The isolate was determined not eligible for listing in the NRHP (Davis, Tuck, et al. 2021; Hanson 2021b).

Sites **45BN2139** and **45BN2140** are historic-period scatters. Background research indicates that there was limited development in the vicinity of sites **45BN2139** and **45BN2140** in the late 19th and early 20th centuries (Davis,

Tuck, et al. 2021). Site **45BN2139** was determined not eligible for listing in the NRHP (Hanson 2021b). Site **45BN2140** has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2141** consists of a historic-period refuse scatter of fragmented glass vessels (amber, aqua, colorless, green, opaque white, and pink). Site **45BN2142** consists of two historic-period structural remains on a southeast-facing slope adjacent to an artificially flattened area—potentially, a grain elevator and ramp/scale house. Historic maps show two structures approximately 0.3 miles (0.5 km) west of both sites (Davis, Tuck, et al. 2021, p. 169). Neither site has been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the sites should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Sites **45BN2143** and **45BN2145** are historic-period artifact scatters. Historic maps show multiple structures within 1 mile (1.6 km) of Site **45BN2143** in 1915, but nothing in its immediate vicinity (Davis, Tuck, et al. 2021, p. 96). Site **45BN2145** is potentially associated with a homestead dating to 1907. Neither site has been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the sites should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson Di2021b).

Archaeological resource **45BN2144** is a historic-period isolate. It was determined not eligible for listing in the NRHP due to a failure to convey significance under any of the criteria, and a lack of integrity (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2147** comprises a stack of cobblestones, likely removed from surrounding agricultural fields. Historic map analysis showed no development in the vicinity of the site, which has not been evaluated for NRHP eligibility. DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2148** is a historic-period surface scatter identified through pedestrian survey (Davis, Tuck, et al. 2021). The archaeological site is associated with historic-period architectural resources related to the Nicoson Road Farmstead (DAHP Property IDs: 724937, 724938) (discussed in 3.9.2.2 Architectural Resources). The archaeological site includes three water cisterns and a root cellar, reinforced with automotive parts. Reviews of aerial imagery and historic mapping suggest the farmstead was built in approximately 1920, and the archaeological site has not been evaluated for NRHP eligibility. DAHP concurred with HRA's recommendation that Site **45BN2148** should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2149** includes a historic-period surface scatter of ceramic sherds and shotgun casings indicative of a mid- to late-20th-century deposition. A U.S. Geological Survey (USGS) map from 1915 shows a structure in the same location as the site, demolished by 1955 (Davis, Tuck, et al. 2021). Site **45BN2149** has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Archaeological resource **45BN2150** is a historic-period isolate. It was determined not eligible for listing in the NRHP due to a failure to convey significance under any of the criteria, and a lack of integrity (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2151** consists of partly buried foundations. No structures are depicted in this location on historic-period maps (David and Ragsdale 2021). An aerial photograph from 1963, however, shows an intact structure, while another from 1996 shows it demolished (Davis, Tuck, et al. 2021, p. 43). Site **45BN2151** has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2152** comprises a historic-period refuse dump, with artifacts that indicate several depositional events in the mid- to late 20th century. Reviews of historic maps and aerial imagery did not suggest the presence of any structures local to the site. Site **45BN2152** has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

As stated above, Site **45BN2153** includes both precontact and historic cultural materials. The historic component of Site **45BN2153** consists of a debris scatter of vessel glass, ceramic sherds, metal fragments, and ammunition hardware. A 1917 USGS map depicts a structure within the site location that was demolished by 1953 (Davis, Tuck, et al. 2021, p. 53). The historic component of Site **45BN2153** has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the historic component of the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2154** is a historic debris scatter located within an unnamed drainage. The site includes structural remains that likely represent a former grain elevator. Artifacts observed include automotive parts and metal containers for oil, weed killer, and paint. Historic mapping and aerial images show a structure in the vicinity of the site location by the mid-20th century (Davis, Tuck, et al. 2021, p. 176). Site **45BN2154** has not been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the site should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Archaeological resource **45BN2155** is a historic-period isolate. It was determined not eligible for listing in the NRHP due to a failure to convey significance under any of the criteria, and a lack of integrity (Davis, Tuck, et al. 2021; Hanson 2021b).

Site **45BN2156** is a historic-period site consisting of two metal oil drums dating to the mid-20th century. Background research indicates little development in this area in the early to mid-20th century, with no mapped homesteads, plots of cultivated land, or structures in the site vicinity (Davis, Tuck, et al. 2021). Site **45BN2156** has been determined not eligible for the NRHP (Davis, Tuck, et al. 2021; Hanson 2021b).

Sites **45BN2157** and **45BN2158** are historic-period sites documented through pedestrian survey in 2021 (Davis, Tuck, et al. 2021). Both were evaluated for NRHP eligibility using archaeological testing under DAHP Permit 2022-21 and recommended not eligible (Tuck et al. 2023). DAHP concurred with the eligibility recommendations for both sites in a letter dated May 18, 2023 (Witt 2023).

Sites **45BN2159**, **45BN2160**, **45BN2161,** and **45BN2162** are historic-period sites documented through pedestrian survey in 2021. With the exception of Site **45BN2159**, these sites may be associated with structures mapped from the early to mid-20th century (Davis, Tuck, et al. 2021). None of these four sites have been evaluated for NRHP eligibility, and DAHP concurred with HRA's recommendation that the sites should be avoided by construction, if possible, or evaluated for NRHP eligibility (Davis, Tuck, et al. 2021; Hanson 2021b).

Archaeological resource **45BN2163** is a historic-period isolate. The isolate was determined not eligible for listing in the NRHP due to a failure to convey significance under any of the criteria, and a lack of integrity (Davis, Tuck, et al. 2021; Hanson 2021b).

3.9.2.2 Architectural Resources

A total of 11 architectural resources were recorded during the pedestrian surveys across the Area of Analysis (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021). These include three resources identified during previous studies of the area (as listed in Section 3.9.2.5). The following architectural resource descriptions are presented alphanumerically by DAHP property identification number (ID). NRHP eligibility determinations in the following summary are based on information available through WISAARD (2022a, 2022b, 2022c, 2022d, 2023a, 2023b, 2023c, 2023d, 2023e, 2023f, 2023g). All architectural resources in the Area of Analysis are listed in **Table 3.9-2**.

Architectural resource Nine Canyon Road (DAHP Property ID **667765**) was previously recorded in 2012. The road was built in approximately 1950 and has been improved multiple times. The architectural resource was determined not eligible for listing in the NRHP in 2014 (WISAARD 2023a). Davis, Jones, et al. (2021, p. 176) surveyed the architectural resource in 2020 and recommended that Nine Canyon Road remain not eligible for listing in the NRHP. DAHP has stated that the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b).

Architectural resource McNary–Badger Canyon No. 1 Transmission Line (DAHP Property ID **721665**) represents a rerouted portion of the McNary–Pasco transmission line, which was originally constructed circa 1948. This architectural resource was recommended not eligible for listing in the NRHP in 2007 (Davis, Burk-Hise, and Henderson 2020). HRA surveyed several portions of the architectural resource in 2020 and 2021 and evaluated the resource per the guidelines of the MPD for the BPA Pacific Northwest Transmission System (Davis, Burk-Hise, and Henderson 2020; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021; Kramer 2012).

The McNary–Badger Canyon No. 1 Transmission Line (DAHP Property ID **721665**) was recommended not eligible for the NRHP under the MPD, and it does not appear to be individually eligible for the NRHP (Davis, Burk-Hise, and Henderson 2020, p. 35; Davis, Jones, et al. 2021, p. 149; Davis, Tuck, et al. 2021, p. 193). WISAARD (2022a) shows that DAHP determined the architectural resource not eligible on April 15, 2020.

Architectural resource McNary–Franklin No. 2 Transmission Line (DAHP Property ID **721666**) was originally constructed in 1955 and energized in 1956. This architectural resource was recommended eligible for listing in the NRHP in 2007 (Davis, Burk-Hise, and Henderson 2020). HRA surveyed several portions of the architectural resource in 2020 and 2021 and evaluated it per the guidelines of the MPD for the BPA Pacific Northwest Transmission System (Davis, Burk-Hise, and Henderson 2020; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021; Kramer 2012).

The McNary–Franklin No. 2 Transmission Line (DAHP Property ID **721666**) was recommended eligible for listing in the NRHP under the MPD guidance for the BPA Transmission System under Criterion A (Davis, Burk-Hise, and Henderson 2020, p.:37-38; Davis, Jones, et al. 2021, p. 151; Davis, Tuck, et al. 2021, p. 197-198). WISAARD (2022b) shows that DAHP determined this architectural resource eligible on April 15, 2020. DAHP has stated the Project would not physically impact any identified architectural resources and, as such, DAHP has no concerns about architectural resources (Hanson 2021b). The introduction of new components to the surrounding landscape will not impact the aspects of integrity of the resource that qualify it for listing in the NRHP. The line will continue to connect the same endpoints within the BPA system and will remain within the original construction corridor.

Architectural resource Grain Elevator (DAHP Property ID **722995**) is a multistorey structure constructed around 1940. HRA surveyed the resource in 2020 (Davis, Jones, et al. 2021). Analysis of historic maps has not associated the elevator with any nearby homestead, and it was recommended not eligible for individual listing in the NRHP (Davis, Jones, et al. 2021, p. 130). DAHP did not concur with this recommendation and determined the grain elevator (DAHP Property ID **722995**) eligible as of November 19, 2021 (Elenga 2023; WISAARD 2022c). DAHP has stated the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b). The grain elevator is eligible under Criteria A and C as a representation of the broad Depression-Era shift towards electrification of agricultural facilities and as an example of its type and period of construction. Changes in surrounding use will not impact the aspects of integrity of the resource that qualify it for listing in the NRHP. The structure will continue to represent its period of historic significance and architectural distinction.

Architectural resource Residence (DAHP Property ID: **722996**) is a manufactured house located at 147407 E Beck Road in Kennewick, Washington. HRA surveyed the resource in 2000 and 2021 (Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021). The 147407 E Beck Road residence (DAHP Property ID: **722996**) was recommended not eligible for the NRHP. WISAARD (2022d) shows that DAHP determined the architectural resource not eligible on November 19, 2021.

Architectural resources Nicoson Road Farmstead Barn Storage Building (DAHP Property ID: **724937**) and Nicoson Road Farmstead Cribbed Grain Elevator (DAHP Property ID: **724938**) are early 20th-century structures associated with historic-period archaeological Site **45BN2148** (discussed in 3.9.2.1.2 Historic-Period Archaeological Resources). HRA surveyed the architectural resources in 2021 and evaluated them for the NRHP collectively as the Nicoson Road Farmstead (Davis, Tuck, et al. 2021, p. 79). The Nicoson Road Farmstead was recommended not eligible for the NRHP. HRA also evaluated the individual NRHP eligibility of the Nicoson Road Farmstead Cribbed Grain Elevator (DAHP Property ID: **724938**) under the MPD guidance for eastern Washington grain production properties and recommended the architectural resource not eligible under the MPD (Davis, Tuck, et al. 2021; Lindeman and Holstine 1988). DAHP did not concur with these recommendations (Elenga 2023).

DAHP determined the Nicoson Road Farmstead Barn Storage Building (DAHP Property ID: **724937**), the Nicoson Road Farmstead Cribbed Grain Elevator (DAHP Property ID: **724938**), and associated archaeological Site **45BN2148** eligible as part of a potential historic district (Elenga 2023). DAHP also determined the Cribbed Grain Elevator (DAHP Property ID: **724938**) is individually eligible under the “Grain production Properties in Eastern Washington MPD” as a representation of its type and period of construction (Elenga 2023; WISAARD 2023c). DAHP has stated that the Project would not physically impact any identified architectural resources (Hanson 2021b). The immediate historic setting of the farmstead has been previously compromised by the removal of key buildings, including the farmhouse and additional accessory structures as seen extant in aerial imagery from 1955 and removed by 2009 (NETROnline var.). Therefore, the introduction of new components to the surrounding landscape will not further impact the aspects of integrity of the resource that qualify it for listing in the NRHP. Visual impacts to the Cribbed Grain Elevator (DAHP Property ID: **724938**) are not expected. Although the historic setting of the property may be diminished by the introduction of new components to the surrounding landscape, the historic setting of the property is not critical to its overall ability to convey its historic significance as a representation of its type and period of construction, and the Cribbed Grain Elevator (DAHP Property ID: **724938**) will remain eligible for listing in the NRHP. The Barn Storage Building (DAHP Property ID: **724937**) is not individually eligible for listing in the NRHP; no impacts are expected.

Architectural resources Farmhouse and Garage (DAHP Property ID: **724939**), Shop (DAHP Property ID: **724940**), Machine Shed (DAHP Property ID: **724941**), and Grain Elevator and Grain Storage Silos (DAHP Property ID: **724942**) constitute a farmstead cluster documented by HRA in 2021. These four architectural resources were evaluated for the NRHP both individually and collectively as a farmstead located at 17302 County Well Road in Prosser, Washington (Davis, Tuck, et al. 2021). The Grain Elevator (DAHP Property ID: **724942**) was also evaluated under the MPD guidance for eastern Washington grain production properties (Davis, Tuck, et al. 2021; Lindeman and Holstine 1988). Davis, Tuck, et al. (2021, p. 125) recommended individual and collective resources at 17302 County Well Road not eligible for listing in the NRHP.

WISAARD shows that DAHP determined Farmhouse and Garage (DAHP Property ID: **724939**) not eligible on November 19, 2021 (WISAARD 2023d). The DAHP Architectural Historian determined architectural resources Shop (DAHP Property ID: **724940**), Machine Shed (DAHP Property ID: **724941**), and Grain Elevator and Grain Storage Silos (DAHP Property ID: **724942**) not eligible for the NRHP on January 23, 2023 (WISAARD 2023e, 2023f, 2023g). DAHP has stated the Project would not physically impact any identified architectural resources (Hanson 2021b).

3.9.2.3 Traditional Cultural Properties

TCPs exist within the Area of Analysis and vicinity for the Yakama Nation, CTUIR, Nez Perce, and Wanapum Tribe. Specific cultural sites and geographic locations of cultural interest are considered confidential by the Tribes. They may include places associated with place names, spiritual sites, viewsheds, places of particular historic significance (i.e., a specific event), traditional use sites, and the specific availability of traditional food sources and medicines. The locations of TCPs within the Area of Analysis would likely remain confidential and privileged information solely for the Tribes.

Yakama Nation has shared via public letter and confidential disclosures, that the construction of the Project will irreparably damage numerous Yakama Nation TCPs throughout the Lease Boundary. The Cultural Resources Program (CRP) of the Confederated Tribes and Band of the Yakama Nation has notified both the Applicant and EFSEC that the Project would be located in a highly sensitive and complex landscape of TCPs. They have indicated that, while the entire Project would harm these properties, there are specific turbine strings and solar arrays that would be most impactful to these cultural resources.

In a public comment letter to EFSEC dated February 1, 2023, Yakama Nation Chairman Gerald Lewis states that, “Several TCPs that are imperiled by this Project have been documented by CRP in a formal study commissioned by United States Bureau of Land Management [BLM], and are considered eligible” (Lewis 2023: p. 3). Viewshed and precontact archaeological materials are important components of one of the documented TCPs (Lewis 2023).

The CTUIR traditional use study (TUS) executive summary identifies traditional food sources observed or expected within the Project Lease Boundary (CTUIR 2021). In summary, 21 native place names are associated with ancient use and knowledge of the land and beliefs about culture and the nature of the world (CTUIR 2021). Oral history investigations conducted for the TUS highlighted, in addition, the presence of 21 traditional food sources (“First Foods”) that were either observed or expected within the Area of Analysis. The loss of access to First Foods was raised as a particular concern by elder informants. The TUS executive summary has also highlighted possible burial site locations within the Lease Boundary (CTUIR 2021). Resources of religious and cultural significance are potentially within the viewshed of the Project. The ability to pinpoint specific landmarks was also highlighted as being integral to Tribes’ oral tradition, legend, and storytelling (CTUIR 2021). All TCPs within the Area of Analysis are unevaluated for listing in the NRHP.

3.9.3 Conclusion

In summary, historic and cultural resources have been identified within the Area of Analysis, including 41 archaeological resources and 11 architectural resources (see **Table 3.9-2,** below). TCPs are located within the Area of Analysis and vicinity.

Four architectural resources have been determined eligible for the NRHP. DAHP has stated that the Project would not physically impact any identified architectural resources and, as such, DAHP has no concerns about architectural resources (Hanson 2021b). Direct visual impacts to identified architectural resources are not expected. Seven architectural resources have been determined not eligible for the NRHP.

Archaeological resources identified within the Area of Analysis include five precontact resources, which comprise three archaeological sites and two isolates. None of the precontact archaeological sites are evaluated for the NRHP; however, NRHP evaluation is not appropriate under the applicable regulatory context. Per RCW 27.53, precontact archaeological Sites **45BN261** and **45BN2090** and the precontact component at Site **45BN2153** require a permit issued by DAHP prior to disturbance. Consultation between EFSEC, DAHP, and Tribes would be necessary in the event of unavoidable impacts on precontact sites. Although RCW 27.53.060 does not protect precontact isolates **45BN2146** and **45BN2092**, the Yakama Nation has requested avoidance of these finds. Consultation between EFSEC, DAHP, and the Tribes is recommended in the event of unavoidable impacts to precontact isolates.

Thirty-seven historic-period archaeological resources have been identified in the Area of Analysis, including 20 historic-period archaeological sites that are unevaluated for the NRHP (see **Table 3.9-2**). These resources should be avoided by construction, if possible, or evaluated for NRHP eligibility. Seventeen historic-period archaeological resources have been determined not eligible for the NRHP.

TCPs include, but are not limited to, resources of religious and cultural significance potentially within the viewshed of the Project, as well as possible burial sites and the locations of First Foods. Public comment letters to EFSEC, tribal-led studies for the Project, and confidential discussions with tribes have confirmed that TCPs are located within the Area of Analysis and vicinity. Consultation with regard to TCPs between EFSEC, DAHP, the Tribes, and any other relevant government agencies (such as DNR or BLM) is recommended.

Table 3.9-2: Archaeological and Architectural Resources in the Area of Analysis

ID # or Site #	Resource Type	NRHP Eligibility/Status	DAHP Concurrence Date[(a)]
45BN205	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigations.	December 10, 2021
45BN261	Archaeological (Precontact Site)	As a precontact site, it cannot be disturbed without a permit issued under RCW 27.53.060.	December 10, 2021
45BN2081	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2082	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2083	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021

Table 3.9-2: Archaeological and Architectural Resources in the Area of Analysis

ID # or Site #	Resource Type	NRHP Eligibility/Status	DAHP Concurrence Date[(a)]
45BN2084	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2085	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2086	Archaeological (Historic Site)	Determined not eligible for listing in the NRHP.	May 18, 2023
45BN2087	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigations.	December 10, 2021
45BN2088	Archaeological (Historic Site)	Determined not eligible for listing in the NRHP.	May 18, 2023
45BN2089	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigations.	December 10, 2021
45BN2090	Archaeological (Precontact Site)	As a precontact site, it cannot be disturbed without a permit issued under RCW 27.53.060.	December 10, 2021
45BN2091	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2092	Archaeological (Precontact Isolate)	Not protected by RCW 27.53 (confirmed isolate). Consultation with Tribes is advised.	December 10, 2021
45BN2093	Archaeological (Historic Site)	Determined not eligible for listing in the NRHP.	May 18, 2023
45BN2138	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2139	Archaeological (Historic Site)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2140	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigations.	December 10, 2021
45BN2141	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigations.	December 10, 2021
45BN2142	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigations.	December 10, 2021
45BN2143	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021

Table 3.9-2: Archaeological and Architectural Resources in the Area of Analysis

ID # or Site #	Resource Type	NRHP Eligibility/Status	DAHP Concurrence Date[(a)]
45BN2144	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2145	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2146	Archaeological (Precontact Isolate)	Not protected by RCW 27.53 (confirmed isolate). Consultation with Tribes is advised.	December 10, 2021
45BN2147	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2148	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigations.	December 10, 2021
45BN2149	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2150	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2151	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2152	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2153	Archaeological (Precontact and Historic Site)	Protected by RCW 27.53 (precontact component). Cannot be evaluated for listing in the NRHP without further archaeological investigation (historic component).	December 10, 2021
45BN2154	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2155	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2156	Archaeological (Historic Site)	Determined not eligible for listing in the NRHP.	December 10, 2021
45BN2157	Archaeological (Historic Site)	Determined not eligible for listing in the NRHP.	May 18, 2023
45BN2158	Archaeological (Historic Site)	Determined not eligible for listing in the NRHP.	May 18, 2023

Table 3.9-2: Archaeological and Architectural Resources in the Area of Analysis

ID # or Site #	Resource Type	NRHP Eligibility/Status	DAHP Concurrence Date[(a)]
45BN2159	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2160	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2161	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2162	Archaeological (Historic Site)	Cannot be evaluated for listing in the NRHP without further archaeological investigation.	December 10, 2021
45BN2163	Archaeological (Historic Isolate)	Determined not eligible for listing in the NRHP.	December 10, 2021
667765 (Nine Canyon Road)	Architectural	Determined not eligible for listing in the NRHP.	November 25, 2012
721665 (McNary–Badger Canyon No. 1 Transmission Line)	Architectural	Determined not eligible for listing in the NRHP.	April 15, 2020
721666 (McNary–Franklin No. 2 Transmission Line)	Architectural	Determined eligible for listing in the NRHP.	April 15, 2020
722995 (Grain elevator)	Architectural	Determined eligible for listing in the NRHP.	November 19, 2021
722996 (147407 E Beck Road Residence)	Architectural	Determined not eligible for listing in the NRHP.	November 19, 2021
724937 (Nicoson Road Farmstead Barn Storage Building)	Architectural	Determined eligible for listing in the NRHP.	November 19, 2021
724938 (Nicoson Road Farmstead Cribbed Grain Elevator)	Architectural	Determined eligible for listing in the NRHP.	November 19, 2021
724939 (Farmhouse and Garage)	Architectural	Evaluated individually and collectively as 17302 County Well Road farmstead cluster. Determined not eligible for listing in the NRHP.	November 19, 2021

Table 3.9-2: Archaeological and Architectural Resources in the Area of Analysis

ID # or Site #	Resource Type	NRHP Eligibility/Status	DAHP Concurrence Date[(a)]
724940 (Shop)	Architectural	Evaluated individually and collectively as 17302 County Well Road farmstead cluster. Determined not eligible for listing in the NRHP.	January 23, 2023
724941 (Machine Shed)	Architectural	Evaluated individually and collectively as 17302 County Well Road farmstead cluster. Determined not eligible for listing in the NRHP.	January 23, 2023
724942 (Grain Elevator and Grain Storage Silos)	Architectural	Evaluated individually and collectively as 17302 County Well Road farmstead cluster. Determined not eligible for listing in the NRHP.	January 23, 2023

Notes:
(a) See Hanson (2021b), Witt (2023), or WISAARD (2022a, 2022b, 2022c, 2022d, 2023a, 2023b, 2023c, 2023d, 2023e, 2023f, 2023g).
NRHP = National Register of Historic Places; RCW = Revised Code of Washington; Tribes = Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Wanapum Tribe

3.10 Visual Aspects, Light and Glare

This section describes metrics and terminology, the applicable regulatory framework (including industry standards), and affected environment for the proposed Horse Heaven Wind Farm (Project, or Proposed Action) vicinity in relation to visual resources. The Project vicinity includes the areas south/southwest of Kennewick, Washington, in Benton County, and the larger Tri-Cities urban area along the Columbia River. The Project's consistency with relevant environmental standards, regulations, goals, and policies, and impacts from the Project and from the No Action Alternative, are evaluated in Section 4.10.

This section focuses on three aspects of visual resources in the Project vicinity—visual aspects, shadow flicker, and light and glare—and describes the metrics and terminology, and the regulatory setting—for each.

Regulatory Setting (Visual Aspects)

Benton County has adopted planning goals and policies in its Comprehensive Plan to conserve areas of potential value to the county and its residents (Benton County 2020). The following planning goals and policies are most applicable to this visual analysis:

- PL[24] Goal 3: Conserve visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the ice age floods.
- Policy 3: Pursue a variety of means and mechanisms such as the preparation of specific and area plans, conservation easements, clustered developments, land acquisitions and trades, statutory requirements to protect the natural landform and vegetative cover of the Rattlesnake uplift formation, notably Rattlesnake, Red, Candy, and Badger Mountains and the Horse Heaven Hills.
- Policy 4: Consider the preservation of the ridges and hillside areas through various development regulations.

These county goals and policies provide the intentions and interests of Benton County, rather than specific compliance requirements for this Project.

As part of the Washington Energy Facility Site Evaluation Council site certification process, Washington Administrative Code 463-60-362(3) identifies the following standard for analysis of visual resources (aesthetics):

> *"The application shall describe the aesthetic impact of the proposed energy facility and associated facilities and any alteration of surrounding terrain. The presentation will show the location and design of the facilities relative to the physical features of the site in a way that will show how the installation will appear relative to its surroundings. The applicant shall describe the procedures to be utilized to restore or enhance the landscape disturbed during construction (to include temporary roads)."*

The Washington site certification process does not require use of a particular visual resource analysis method. This section summarizes the location and design elements of the Project that may influence existing aesthetic conditions and the analysis methods used to characterize visual resources. Section 4.10 describes how the Project would appear relative to the surrounding landscape and analysis of visual impacts of the Project.

The Visual Resource Management (VRM) system developed by the Bureau of Land Management (BLM) has become an industry standard to analyze potential visual impacts, particularly in the western United States, and is often applied to projects on non-BLM lands (BLM 1986). The BLM VRM system and other federal agency visual

[24] Parks, Recreation, Open Space, and Historic Preservation

resource methodologies (e.g., U.S. Forest Service scenery management system and U.S. Federal Highway Administration Guidelines for the Visual Impact Assessment of Highway Projects) have three common elements:

- Scenery: continuous units of land with harmonized features that result in and exhibit a particular character
- Views (sensitivity to visual change and visibility): public viewing locations, including recreation areas, travel routes, residences, and lands with special management, where viewers have sensitivity to landscape changes
- Agency visual management requirements: identify allowable levels of change to landscape character and the allowable degree of attention that a project could attract from viewing locations

To build on the BLM VRM methods, this section also considers elements from the Visual Impact Assessment Process for Wind Energy Projects from the Clean Energy States Alliance (CESA), which were developed to address the unique visual characteristics of wind energy projects (CESA 2011).

Regulatory Setting (Shadow Flicker)

Shadow flicker is not regulated in state or federal law applicable to the Project, nor is it addressed by the local county ordinances; therefore, potential shadow flicker impacts were assessed against the industry standard threshold of 30 hours per year (Lampeter 2011).

Regulatory Setting (Light and Glare)

As part of the site certification process, Washington Administrative Code 463-60-362(2) identifies the following requirement for analysis for light and glare analysis in an Application for Site Certification (ASC):

> *"The application shall describe the impact of light and glare from construction and operation and shall describe the measures to be taken in order to eliminate or lessen this impact."*

Lighting conditions are assessed in terms of percentage of brightness above natural dark sky background and classified based on definitions and descriptions from CIE guidelines, which consist of a set of established Environmental Lighting Zones (ELZ) for classifying exterior light levels (CIE 1997, 2003). These zones and related quantitative thresholds are shown in **Table 3.10-1**.

3.10.1 Visual Aspects

Metrics and Terminology

The visual resources inventory focused on three elements:

- Landscape character
- Viewing locations
- Viewer sensitivity

The term "landscape character" is used to describe the overall visual appearance of a given landscape, based on its vegetation, landforms/water, and human-made modifications. Landscape character is often described in terms of landscape character areas, which are portions of a larger landscape that share harmonizing features that result in and exhibit a particular visual character.

The visibility of the Project structures from typical or sensitive viewing locations considers the most critical places from which the public would view the Project. These are commonly referred to as key observation points (KOP) and are used to assess the Project's anticipated visual impacts. KOP locations can be static, such as residential areas, where views would occur from a consistent location, as well as linear, such as travel ways, where views change as viewers move along a road or trail.

Reactions to changes in the landscape by a viewer (also termed "receptor") is called viewer sensitivity and can vary depending on the characteristics and preferences of the viewer group. For example, residential viewers are typically expected to have a high concern regarding changes in views from their residences. These preferences may also vary depending on whether the residential viewer is a Project participant (i.e., a resident with whom the Applicant has a lease agreement) or if views are from a non-participating property. Motorists' concerns generally depend on when and where travel occurs and the type of travel involved (e.g., commuting vs. recreational travel). Recreational users' concerns vary based on the activities occurring and the length of time that receptors experience the landscape (view duration). For example, viewers at a scenic overlook are expected to have a higher concern regarding changes in view because in this case the landscape would be viewed for a long duration and the view is integral to its use, compared to motorists on a non-scenic designated highway, in which the landscape is viewed for a shorter duration and is not necessarily the focus of the viewer's activity.

3.10.2 Shadow Flicker

Metrics and Terminology

A turbine's rotating blades can cast a moving shadow on locations within a certain distance of the turbine. This can create a temporary phenomenon experienced by nearby viewers called "shadow flicker." This phenomenon has the potential to be a nuisance to humans in both outdoor and indoor settings (McGlinchey and Caporossi 2013). The influence area associated with shadow flicker depends on the time of year and day (which determine the angle of the sun in relation to the turbine and the receptor) and the turbine's physical characteristics (e.g., height, rotor diameter, blade width, and orientation of the rotor blades). The effect of shadow flicker on surrounding properties generally occurs during low-angle sunlight conditions, typically during sunrise and sunset. However, when the sun angle is very low (i.e., less than 3 degrees), sunlight passes through more atmosphere and becomes too diffuse to form a coherent shadow.

Shadow flicker does not occur when the sun is obscured by clouds or fog, at night, or when the source turbine(s) are not operating. In addition, shadow flicker occurs only when at least 20 percent of the sun's disc is covered by the turbine blades.

Shadow flicker intensity is calculated as the difference in brightness at a given location in the presence and absence of a shadow. Shadow flicker occurrence and intensity diminish with greater receptor-to-turbine separation distance. In general, shadow flicker may become more noticeable the closer a viewer is to the turbine.

3.10.3 Light and Glare

Metrics and Terminology

Light

Light sources would be introduced as part of the Project operations as security lighting for the substations, battery energy storage systems (BESS), and solar arrays and as aviation lighting for turbine towers and other elevated structures, per Federal Aviation Administration (FAA) requirements. Additionally, it is possible that the Project

would involve nighttime construction and decommissioning activities that require lighting, though these activities would be concentrated during the daylight hours.

Light is part of the electromagnetic spectrum, which ranges from radio waves to gamma rays. Electromagnetic radiation waves are fluctuations of electric and magnetic fields, which can transport energy from one location to another. Visible light is not inherently different from other parts of the electromagnetic spectrum, with the exception that the human eye has evolved to detect visible waves. The human eye responds to light based on its frequency. The frequency of light that is within the visible range establishes the observed color. While response to light varies from person to person, the Commission Internationale de l'Eclairage (CIE) defined standard luminosity coefficients for the human eye in 1931 (CIE 1997).

The FAA outlines wind turbine lighting standards to increase the visibility of lighting systems for pilots in its Advisory Circular No. 70/7460-1L, issued on August 17, 2018. Lighting systems must consist of aviation red obstruction lights that are either flashing, strobe, or pulsed, as outlined in the Advisory Circular as FAA L-864 lighting. This lighting must be synchronized to flash with nearby systems. For wind farms, turbines with a rotor tip height above 499 feet must be lit regardless of the configuration of the larger wind farm or nearby turbines. Wind energy systems above 699 feet must feature lighting on the nacelle—the housing for the generator at the top of a turbine that is connected to the rotor—as well as at a midpoint on the turbine's mast, placed between the nacelle at the top of the turbine and the ground (FAA 2018). Additionally, recent state legislation requires that new windfarms apply with the FAA for Aircraft Detection Lighting Systems (ADLS) that would turn off turbine lights at night when no aircraft are in the area (HB 1173, 2023). This would reduce the amount of light emitted by towers if the application to the FAA is approved.

Light Trespass

Light trespass refers to light or illuminance that strays from its intended purpose and potentially becomes an annoyance to nearby receptors. Some regulators have established programs to reduce light trespass caused by outdoor lighting (NCSL 2022). These programs are based on limiting the amount of light from a light source that is transmitted onto adjoining properties. Similar to noise, light trespass standards vary according to the land uses where the trespass occurs.

Sky Glow

Sky glow is stray light scattering in the atmosphere, brightening the natural sky background level, and reducing star visibility at night. Sky glow impacts are often associated with light pollution, which can have a regional effect on perceived lighting conditions. Sky glow information and comparisons are presented in **Appendix 3.10-1**.

Table 3.10-1: Environmental Lighting Zone Classifications for Sky Glow

ELZ	Description of the ELZ	Sky Glow (% brightness above natural dark sky)	Sky Glow (mag/arcsec^2)
E1	Intrinsically dark natural areas (e.g., national parks or protected sites, roads usually unlit)	0 % < x ≤ 20 %	21.3–23.0
E2	Areas of low district brightness (e.g., agricultural, industrial, or outer urban/rural residential areas)	20 % < x ≤ 100 %	20.4–21.3
E3	Areas of medium district brightness (e.g., industrial, or small-town centers / residential suburbs)	100 % < x ≤ 200 %	18.0–20.4

Table 3.10-1: Environmental Lighting Zone Classifications for Sky Glow

ELZ	Description of the ELZ	Sky Glow (% brightness above natural dark sky)	Sky Glow (mag/arcsec^2)
E4	Areas of high district brightness (e.g., town/city centers and commercial areas urban areas, residential and commercial with high levels of nighttime activity)	x > 200 %	<18.0

Source: CIE 1997
ELZ = Environmental Lighting Zone; mag/arcsec^2 = magnitudes per square arcsecond

Glare

Solar panels may be a source of reflected light during operation of the Project, and there may be temporary light reflection during construction and decommissioning from equipment windshields and glass enclosures, causing glint and glare for some viewers. ForgeSolar (n.d.) defines glint and glare as follows:

> *"Glint is typically defined as a momentary flash of bright light, often caused by a reflection off a moving source. A typical example of glint is a momentary solar reflection from a moving car. Glare is defined as a continuous source of bright light. Glare is generally associated with stationary objects, which, due to the slow relative movement of the sun, reflect sunlight for a longer duration."*

Based on the ForgeSolar definitions of glint and glare and the stationary nature of the Project's solar arrays, the potential reflectance from the Project is referred to as glare.

The FAA developed Technical Guidance for Evaluating Selected Solar Technologies on Airports in 2010, in addition to FAA regulatory guidance under 78 Federal Register (FR) 63276 Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports (FAA 2010). The FAA guidance recommends that glare analyses should be performed on a site-specific basis using the Sandia Laboratories Solar Glare Hazard Analysis Tool (FAA 2010). This tool is the standard for measuring potential visual impact as a result of solar facilities. The FAA guidance applies to solar facilities located on federally obligated airport property. It is not mandatory for solar facilities not located on an airport property (for these, a Form 7460-1 is filed with FAA pursuant to Title 14 Code of Federal Regulations [CFR] Part 77.9, as discussed below), but is considered to be an industry best practice for solar facilities in general.

According to 78 FR 63276, the FAA has determined that "glint and glare from solar energy systems could result in an ocular impact on pilots and/or air traffic control facilities and compromise the safety of the air transportation system." The FAA has developed the following criteria for analysis of solar energy projects located on jurisdictional airports:

1) No potential for glint or glare in the existing or planned air traffic control tower cab.

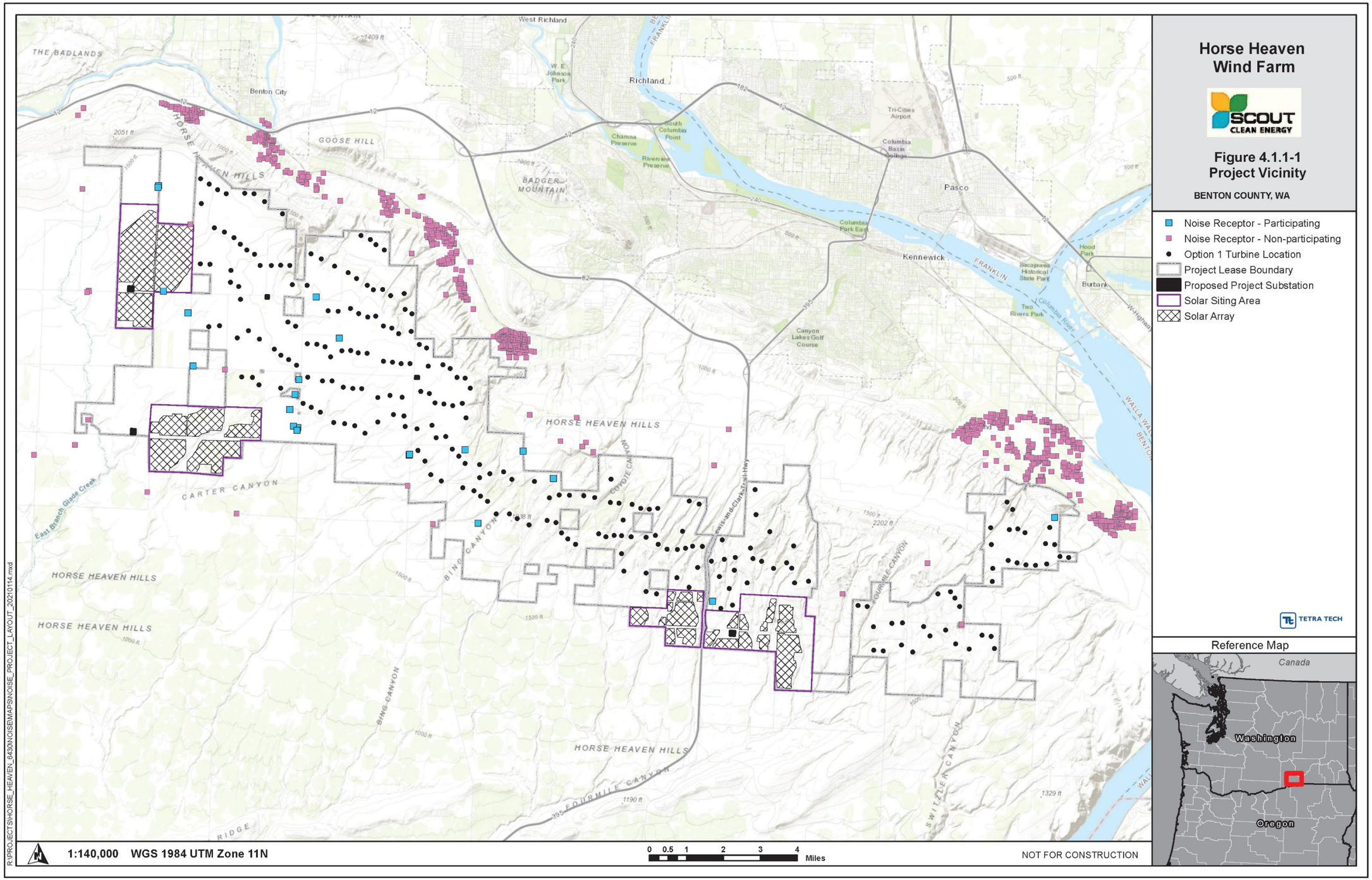
2) No potential for glare, or "low potential for after-image," along the final approach path for any existing or future landing threshold (including any planned interim phases of the landing thresholds), as shown on the current FAA-approved Airport Layout Plan. The final approach path is defined as 2 miles from 50 feet above the landing threshold using a standard 3-degree glidepath.

The online FAA Notice Criteria Tool (NCT) reports whether a proposed structure is near a jurisdictional air navigation facility and if formal submission to the FAA under 14 CFR Part 77.9 (Safe, Efficient Use, and

Preservation of the Navigable Airspace) is recommended (FAA 2020). The NCT also identifies final approach flight paths that may be considered vulnerable to a proposed structure's impact on navigation signal reception. The NCT was utilized to determine if the proposed Project is located within an FAA-identified impact area based on the Project boundaries and height above ground surface. The FAA NCT report stated that the Project does not exceed notice criteria, so a formal filing is not necessary.

3.10.4 Affected Environment

The Project Lease Boundary is dominated by rolling hills bisected by meandering canyons, some of which constitute ephemeral or intermittent drainages. The Horse Heaven Hills ridgeline lies along the northern border of the Lease Boundary. On the southern side of this ridge, the landscape transitions to rolling topography with shallow, meandering canyons that drain southwest into the Columbia River. **Figure 3.10-1** provides an overview of the Project vicinity and shows the locations of nearby residences that are considered KOPs and receptors for light and glare analysis, as well as their visual aspect. These receptors will be used to assess the Project's compliance with identified standards and guidelines as viewers potentially impacted by changes in visual aspect, light and glare in Section 4.10. The residential receptors are a subset of the noise sensitive receptors analyzed for the Project as part of the acoustic assessment (Section 3.11) and retain the associated identification numbers for cross-reference.



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.10-1: Noise Sensitive Receptors in Project Vicinity

3.10.4.1 Visual Aspects

Inventory Methods

The visual resource area of analysis identified in the 2022 ASC was the area within 10 miles of the proposed wind turbines and transmission line and within 5 miles of the proposed solar arrays, substations, and BESS. Based on guidance from both the BLM (Sullivan et al. 2012) and CESA (2011), the area of analysis for the wind turbines in this Environmental Impact Statement (EIS) was extended to 25 miles.

Existing Landscape Character

The Project would be located within the Columbia Plateau U.S. Environmental Protection Agency Level III ecoregion, which is typically characterized by a broad expanse of sagebrush-covered volcanic plains and valleys adjacent to the Columbia River and dotted with isolated mountains (EPA 2010). There are landscape features in the area of analysis associated with a series of cataclysmic floods that occurred at the end of the most recent ice age, when glacially dammed lakes ruptured, and large volumes of water rushed through the northwestern United States (NPS 2014).

The Lease Boundary is primarily characterized by the following features:

- Panoramic landscapes are flat to rolling, comprising arid sagebrush steppe and grasslands that have been partially converted to agricultural lands.
- Topography gently slopes from north to south, with a distinctive ridge located north of the Lease Boundary that connects the elevated sagebrush steppe to the Columbia River Valley.
- There are a series of minor drainageways that dissect the landscape, with some forming small canyon settings.
- Due to the arid climate, there are limited trees within the Lease Boundary. Most trees visible in the Lease Boundary are associated with ornamental landscaping and windbreaks adjacent to residences, with the primary vegetation communities being agricultural lands with areas of remnant sagebrush steppe and grassland.
- Vegetation color in agricultural areas ranges from green to tan and brown, depending on the season and the crop being grown. More vivid colors occur along the Columbia River Valley associated with residential, commercial, and agricultural development that contrasts with the arid, muted colors found within the Lease Boundary.
- A series of linear travel routes including I-82 as well as other paved highways, smaller local gravel roads, and natural surface roadways are visible throughout the Lease Boundary.

The inventory of existing landscape character, based on CESA guidance, also considered the intactness of the landscape. This relates to the extent of modifications present in the existing landscape and their overall effect on natural patterns, which define the landscape. These modifications have the potential to create unintended focal points contrasting with the natural landscape character. There are three main landscape character areas that define the Lease Boundary's landscape character:

- Plateau lands west of Interstate 82 (I-82): The arid, rolling plateau lands west of the interstate are mostly intact with limited existing utility or other industrial uses. An existing transmission line traverses the western edge of the Lease Boundary, influencing the adjacent setting. There are also residences dispersed across

this rural agricultural landscape, introducing geometric structures and additional vegetation in the setting associated with wind breaks and ornamental landscaping. The juxtaposition of residences and agricultural lands, including barns and other structures, creates an agrarian landscape character common to the region.

- Plateau lands east of I-82: The landscape east of the interstate is similar to the western area but includes a series of wind turbine strings associated with the existing Nine Canyon Wind Project. There is also an existing transmission line that crosses the Lease Boundary near the west side of the existing Nine Canyon Wind Project and along the southern edge of the Lease Boundary adjacent to I-82. The influence of the existing landscape modifications extends throughout this landscape, reducing its level of intactness. The tall vertical form of the existing wind turbines and their movement attract attention within the setting, generally dominating the local landscape character.
- Ridgeline: This landscape is most prominent east of I-82 but continues to the west as a connection between the flat lands adjacent to the Columbia River and the elevated steppe lands. Due to the steep terrain, this area is visually prominent as viewed from the communities located north of the Lease Boundary. There are multiple paragliding launch sites along the ridge, including Jump Off Joe butte, M&M Ridge, and Kiona Ridge (see Figure 3.12-5). Additionally, there are two strings of the existing Nine Canyon Wind Project sited along the ridge, as well as a communication tower, which reduce the intactness of the setting east of I-82.

Viewing Locations

To identify the KOP locations used in this analysis, a series of bare earth viewshed analyses were run to depict the visibility of the Project from the surrounding area. The bare earth modeling approach used in the viewshed analysis does not account for screening effects from vegetation or buildings that could block or partially block some views. In this manner, the bare earth viewshed approach results in a conservative assessment of potential Project visibility. The analysis in the 2022 ASC submitted for the Project included six viewsheds to compare visibility of the two turbine layout options, identify visibility of the three solar array siting areas, and assess the visibility of the proposed transmission lines (Horse Heaven Wind Farm, LLC 2022). Based on the expansion of the area of analysis for the wind turbines from 10 miles to 25 miles, the viewsheds associated with the two turbine layout options were updated in the updated Horse Heaven Wind Farm Project Visual Impact Assessment Report (**Appendix 3.10-2**) to include this larger, regional setting (SWCA 2023).

Within Horse Heaven Wind Farm, LLC's (Applicant's) visual resources area of analysis, results of the viewshed analyses and aerial photography were used to identify potential KOPs, including:

- Residential structures
- Travel ways (interstate, highways, and local roads)
- Cultural resources with visual aspects
- Recreation areas (including trails)
- Other areas of interest, including open space areas

These KOPs represent critical viewpoints, typical views in representative landscapes, and views of any special Project features. Additionally, the Applicant sought input from Benton County to identify potential areas of interest to local community members. Benton County noted interest on the part of residents located north of the Project. This area of interest contains a large number of residences, as well as a series of parks and other recreation areas. The resulting list of potential KOPs was visited and photographed, and a series of KOPs were identified for

analysis to represent the range of viewers and locations that would have views of the proposed Project infrastructure. In addition to these Applicant-selected KOP locations, supplementary viewing locations were considered to represent views from dispersed residences located directly adjacent to the proposed wind turbines and views from Horse Heaven Hills, a BLM-managed dispersed recreation area (BLM n.d.).

The types of users in the visual study areas include residents of the adjacent Tri-Cities communities, including Benton City, Burbank, Kennewick, Pasco, Richland, West Richland, Finley, and Prosser; travelers on the various interstates and highways; and recreationists visiting the Rattlesnake, Red, Candy, and Badger Mountains, McNary National Wildlife Refuge, and other recreational facilities in the area. Lands within the Lease Boundary are also of interest to the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, and Nez Perce Tribe, who may attach cultural significance to natural landscape components.

Distance from the Project is a key factor in determining potential visual impacts, with the amount of perceived contrast generally diminishing as distance between the viewer and the affected area increases (BLM 1986). Contrast is defined as the level of visible change to the existing features of the landscape (including landform/ water, vegetation, and human-made structures) resulting from the introduction of a project or management activity. The BLM VRM system and other visual resource systems establish a series of distance zones to identify visibility thresholds and inventory the existing landscape. For the purposes of this study, the distance to the Project (in miles) was used to identify viewing distance, with a particular focus on the foreground distance zone. This area corresponds to the area within 0.5 miles of the Project, where views of modifications to the landscape would be most prominent, leading to views potentially dominated by Project infrastructure.

The list of viewing locations and KOPs used in this analysis, as well as the associated viewer type, viewer sensitivity, and distance to the Project, are presented in **Table 3.10-2** and depicted in **Figure 3.10-2**. Some of the KOPs have multiple views looking in different directions such as KOP 2 (KOP 2a, 2b, and 2c), which includes potential views of the Project to the southeast, south, and southwest (Horse Heaven Wind Farm, LLC 2022).

Table 3.10-2: Key Observation Point Locations

KOP Number	Viewer Name	Viewer Type	Viewer Sensitivity	Distance to Project	Description
1	McNary National Wildlife Refuge (NWR)	Recreation	Moderate	5.2 miles (wind turbines) Solar arrays, transmission lines, and substations/ BESS would not be visible from this location.	Viewpoint is located along an unpaved road within the McNary NWR, looking southwest across the Columbia River toward the Project Lease Boundary.
2 (2a, 2b, and 2c)	S Clodfelter Road – East, Central, and West	Residential	High	3.0 miles (wind turbines) 3.4 miles (transmission line) Solar arrays and substations/BESS would not be visible from this location.	Viewpoint is located along the south side of Manuel Drive, toward S. Clodfelter Road, looking southeast to southwest.

Table 3.10-2: Key Observation Point Locations

KOP Number	Viewer Name	Viewer Type	Viewer Sensitivity	Distance to Project	Description
3	Chandler Butte	Recreation	High	2.5 miles (wind turbines) 2.1 miles (solar array) 4.2 miles (transmission line) The substations/BESS would be visible from this location but would be outside of the photo frame.	Viewpoint is located along the unpaved road east of the communication towers, looking southeast.
4 (4a and 4b)	I-82 South	Travel route	Moderate	7.0 miles (wind turbines) 6.0 miles (solar array) 6.5 miles (transmission line) The HH-East Substation/ BESS would be visible from this location.	Viewpoint is located along the right shoulder of the highway, looking northwest to northeast.
5	Badger Mountain	Recreation	High	4.7 miles (wind turbines) Solar arrays, transmission lines, and substations/ BESS would not be visible from this location.	Viewpoint is located along the southern side of the top of Badger Mountain looking southwest.
6	Bofer Canyon Road/I-82	Travel route	Moderate	1.7 miles (wind turbines) 0.6 mile (solar array) 1.2 miles (transmission line) The HH-East Substation/ BESS would be visible from this location but would be outside of the photo frame.	Viewpoint is located along the right shoulder of the road, looking north.
7	Highway 221	Travel route, residential	High	5.8 miles (wind turbines) 3.1 miles (solar array) 2.2 miles (transmission line) The HH-West Substation/ BESS would be visible from this location.	Viewpoint is located along the right shoulder of the highway, looking northeast.
8 (8a and 8b)	Kennewick (Canyon Lakes Area) – South and West	Residential	High	3.6 miles (wind turbines) 5.9 miles (solar array) 7.4 miles (transmission line) The substations/BESS would not be visible from this location.	Viewpoint is located on the southwest end of S. Olson Street, looking west to south.
9	Benton City	Residential, travel route, commercial	High	2.7 miles (wind turbines) 3.9 miles (solar array) 5.5 miles (transmission line) The substations/BESS would not be visible from this location.	Viewpoint is located on the east side of Division Street/State Route 225, looking south.

Table 3.10-2: Key Observation Point Locations

KOP Number	Viewer Name	Viewer Type	Viewer Sensitivity	Distance to Project	Description
10	Badger Road	Residential, travel route	High	1.5 miles (wind turbines) 6.4 miles (solar array) 4.3 miles (transmission line) The substations/BESS would not be visible from this location.	Viewpoint is located on the north side of Badger Road, looking southwest.
11	Highland/ Finley Area	Residential	High	2.0 miles (wind turbines) 8.5 miles (solar array) 8.7 miles (transmission line) The substations/BESS would not be visible from this location.	Viewpoint is located on the north side of E. Cougar Road near an entrance driveway to Finley Elementary School, looking southeast.
12	County Well Road	Residential, travel route	High	2.5 miles (wind turbines) 0.2 miles (solar array) 0.2 miles (transmission line) The HH-West (Alternative) Substation/BESS would be visible from this location and located 0.5 miles away.	Viewpoint is located on the left shoulder of County Well Road, looking northeast.
13	Travis Road South of Sellards Road	Residential, travel route	High	1.1 miles (wind turbines) 1.0 mile (solar array located outside of photo frame) 0.1 miles (transmission line) The substations/BESS would not be visible from this location.	Viewpoint is located on the right shoulder of Travis Road, looking north.
14 (14a and 14b)	South of Benton City	Residential, travel route	High	1.7 miles (wind turbines) Solar arrays, transmission lines, and substations/ BESS would not be visible from this location.	Viewpoint is located on E. Jacobs Road near Webber Canyon Road and adjacent residences looking southwest to southeast.
15	Interstate 82	Travel route	Moderate	0.7 miles (wind turbines) 0.1 miles (transmission line) 0.1 miles (solar array located outside photo frame) Substations/BESS would not be visible from this location.	Viewpoint is located along the left shoulder of the frontage road adjacent to the highway, looking northwest to northeast.
16	U.S. Highway 730 – Wallula Gap	Travel route	Moderate	Wind turbines, solar arrays, transmission lines, and substations/ BESS would not be visible from this location.	Viewpoint is located along the right shoulder of the highway, looking west toward the Wallula Gap

Table 3.10-2: Key Observation Point Locations

KOP Number	Viewer Name	Viewer Type	Viewer Sensitivity	Distance to Project	Description
N/A	Dispersed residences located 0.5 miles from proposed turbines (foreground views)	Residential	High	Less than 0.5 miles (wind turbines) The other Project component distances would vary but are more specifically described from other KOP locations.	There are approximately 13 residences located within the foreground distance zone of the proposed wind turbines, less than 0.5 miles, with two of those identified as non-Project participating properties. Additionally, there are numerous residences located within 0.5 to 1 mile of the proposed wind turbines.
N/A	Horse Heaven Hills Recreation Area	Recreation	Moderate	0.8 miles (wind turbines) Solar arrays, transmission lines, and substations/ BESS would not be visible from this location.	Dispersed recreation including opportunities for hiking, nature viewing, and mountain biking with potential views of the Project to the south.

Source: SWCA 2023
BESS = battery energy storage system; KOP = key observation point; N/A = not applicable

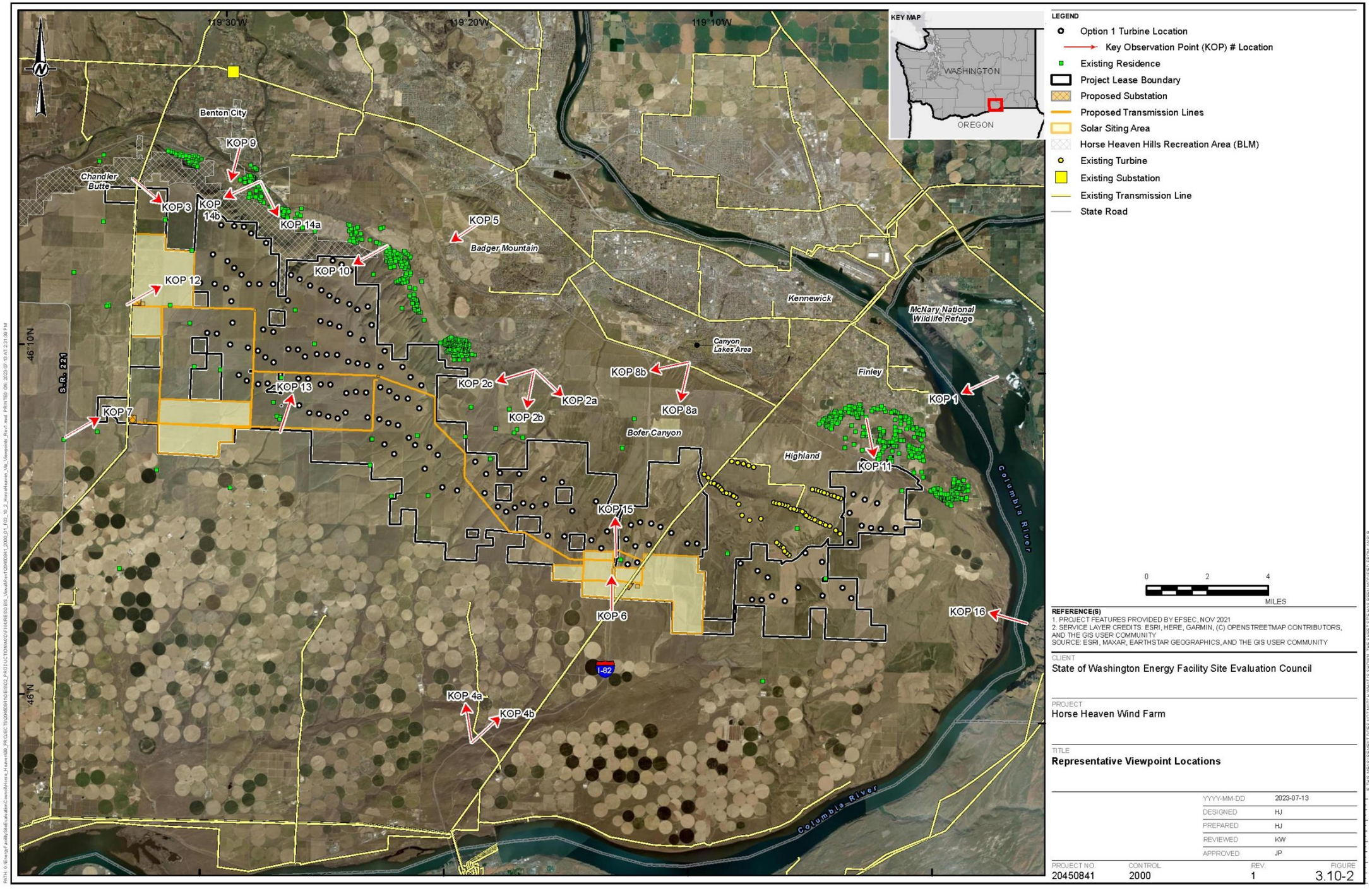


Figure 3.10-2: Representative Viewpoint Locations

A series of visual simulations were prepared from KOPs 1 through 16, with both wind turbine options depicted, and are included in **Appendix 3.10-2**. No simulations were developed from either of the unnumbered KOP viewing locations (e.g., Horse Heaven Hills Recreation Area or dispersed residences within foreground distance zone) as these locations represent distributed views from within the BLM recreation area or from multiple, dispersed residences near proposed turbine locations. Existing condition photographs were taken using standard focal lengths to most closely represent the human field of view. To create photographic simulations, a three-dimensional model of the turbine, solar array, and transmission line layouts were placed in the photographic view, taking into consideration Lease Boundary topography (elevation) and distance from the observation point. Simulated turbines, solar arrays, and transmission lines were aligned to the photographs, and the model was rendered and composited to create the visualizations. Some of the KOP locations have multiple simulations looking in different directions, such as KOP 2, which includes potential views of the Project to both the southeast, south, and southwest (Horse Heaven Wind Farm, LLC 2022). Visual simulations from KOPs 3, 5, 6, and 7, included in the Draft EIS, were updated to reduce the effect of atmospheric conditions to best depict Project visibility under exceptionally clear atmospheric conditions. This included taking new photographs from these viewpoints, as well as digitally dehazing and replacing the sky in the existing photographs. The original and edited photographs are provided for each of the representative viewpoints in **Appendix 3.10-2**. Additionally, three new KOPs (KOPs 14, 15, and 16) with visual simulations were added to the analysis based on public comments on the Project's Draft EIS. The existing photographs and visual simulation of KOP 14 were also updated to reduce the effect of atmospheric conditions and to depict the Project's visibility under exceptionally clear atmospheric conditions.

3.10.4.2 Light and Glare

The landscape surrounding the Project is primarily natural, residential, or agricultural land use and therefore has limited sources of artificial light at night. Existing light or glare could occur from vehicles traveling on local roadways and I-82, nearby rural residential development, the adjacent Nine Canyon Wind Project, and any nearby Bonneville Power Administration substations. No street lighting exists along local roadways. The level of light and glare from these sources is low, and typical for the rural, largely agricultural setting.

The assessment of the existing nighttime lighting is based on the current perceived lighting conditions experienced by viewers at night. To establish a baseline of pre-project lighting conditions, the existing sky glow light levels can be assumed based on receptor locations and their surrounding land uses. The receptor locations are shown in **Figure 3.10-1**.

Based on the ELZ classifications outlined in **Table 3.10-1**, identified receptors inside the Lease Boundary and in the Project vicinity fall into one of the middle two ELZ classifications:

- E2 – Participating residences and receptors adjacent to the Lease Boundary located in rural low density agricultural areas. Light trespass assumed to be indistinguishable from property to property at this ELZ.
- E3 – Receptors adjacent to the Lease Boundary and receptors located in the Project vicinity that are in less rural and more densely populated residential areas, mainly to the north of the Project. Light trespass assumed to be indistinguishable to small from property to property at this ELZ.

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3.11 Noise and Vibration

This section describes the existing noise and vibration environment, as well as the regulatory setting, for the proposed Horse Heaven Wind Farm (Project, or Proposed Action) vicinity. The Project vicinity includes the areas 4 miles south/southwest of Kennewick, Washington, in Benton County, and the larger Tri-Cities urban area along the Columbia River. The Project's potential impacts to noise and vibration including consistency with relevant environmental standards, regulations, goals, and policies is evaluated in Section 4.11.

Acoustic Metrics and Terminology

Acoustic values can be described in terms of noise or sound. Sound is generated by pressure fluctuations in the air. Noise is generally defined as any "unwanted" sound and is therefore based on human perception, but the terms "noise" and "sound" are often used interchangeably. Sound propagation involves three principal components: a sound source, a person or a group of people, and a transmission path. While two of these components, the sound source and the transmission path, are easily quantified (i.e., by direct measurements or through predictive calculations), the effect of noise on humans is hard to determine. It is difficult to predict a response from one individual because there is variation in how people perceive and react to noise.

Level of noise is related to magnitude of sound pressure, which is referred to as sound pressure level (SPL) and is measured in units called decibels (dB). The higher the decibel value, the louder the sound. Decibels are calculated as a logarithmic function of the measured SPL in the air in relation to a reference effective sound level of 0 dB, which is considered the hearing threshold. To account for human response to sound, it is common to use the A-weighted sound level (noted in units of dBA) in evaluating noise sources and their impacts on humans. The A-weighted scale expresses relative loudness as perceived by the human ear, by reducing sound levels mostly at low frequencies to which the human ear is less sensitive. Accordingly, A-weighted decibels will almost always be lower than unweighted decibels.

The following SPL data parameters are typically collected during a typical noise study:

- Leq – The equivalent continuous SPL averaged over the measurement period; this parameter is the continuous steady SPL that would have the same total acoustic energy as the real fluctuating noise over the same time.
- Lmax – The maximum SPL for the sampling period.
- Lmin – The minimum SPL for the sampling period.
- Ldn – The day-night average SPL is calculated with a 10 dBA "penalty" added to nighttime hours (10 p.m. to 7 a.m.). This is done to evaluate potential human response in residential land uses, where humans are more sensitive to nighttime noise impacts.
- Ln – The SPLs that were exceeded n percent of the time during the sampling period. For example, L90 is the level exceeded 90 percent of the time.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Ground-borne noise occurs when vibration radiates through a building interior and creates a low-frequency sound, often described as a rumble, as when a train passes by (FTA 2018). However, in contrast to airborne noise, ground-borne vibration is not a common environmental

problem from wind turbine construction or operation. It is unusual for vibration from sources such as large construction equipment to be perceptible at distances greater than 100 feet. Additionally, commercial wind turbines generate ground vibrations through the wind-structure interaction of the turbine foundation at such low levels that their impacts are negligible (Gonzalez-Hurtado et al. 2017).

In addition to vibration that travels through the ground, vibration can also travel through the air as low-frequency noise (LFN) and/or as infrasound. Sounds with a frequency of 20 hertz (Hz) and lower are called infrasound, and LFN is understood to mean sound with a frequency below 125 Hz. Commercial wind turbines generate noise over a broad spectrum of frequencies, including LFN and infrasound (Møller and Pedersen 2011). LFN, however, is typically accounted for as a noise impact and not a vibration impact. When sound levels are within community standards, then LFN will not be at a level that creates a greater vibration impact.

Regulatory Setting

Federal Regulations

There are no federal noise regulations applicable to the Project.

Washington Administrative Code Statutes

Environmental noise limits have been established by Washington Administrative Code (WAC) 173-60. WAC 173-60 establishes limits on sounds crossing property boundaries based on the Environmental Designation for Noise Abatement (EDNA) of the sound source and the receiving properties.

- Class A EDNA – Lands where people reside and sleep. They typically include residential property; multiple family living accommodations; recreational facilities with overnight accommodations such as camps, parks, camping facilities, and resorts; and community service facilities, including orphanages, homes for the aged, hospitals, and health and correctional facilities.
- Class B EDNA – Lands involving uses requiring protection against noise interference with speech. These typically include commercial living accommodations; commercial dining establishments; motor vehicle services; retail services; banks and office buildings; recreation and entertainment property not used for human habitation such as theaters, stadiums, fairgrounds, and amusement parks; and community service facilities not used for human habitation (e.g., educational, religious, governmental, cultural, and recreational facilities).
- Class C EDNA – Lands involving economic activities that tend to have noise levels higher than those normally experienced in other areas. Typical Class A EDNA uses generally are not permitted in such areas. Typically, Class C EDNA uses include storage, warehouse, and distribution facilities; industrial property used for the production and fabrication of durable and nondurable man-made goods; and agricultural and silvicultural property used for the production of crops, wood products, or livestock.

The noise level limits by EDNA classifications are presented in **Table 3.11-1**. Between the hours of 10:00 p.m. and 7:00 a.m., the noise limitations are reduced by 10 dBA for receiving property within Class A EDNAs. The WAC allows these limits to be exceeded for certain periods of time:

- 5 dBA for no more than 15 minutes in any hour
- 10 dBA for no more than 5 minutes of any hour
- 15 dBA for no more than 1.5 minutes of any hour

WAC 173-60-050 exempts daytime noise generated by blasting and temporary daytime construction noise from the state noise limits.

Table 3.11-1: Washington State Environmental Noise Limits

EDNA of Noise Source Property	EDNA of Receiving Property		
	Class A Day/Night	Class B Land	Class C Land
Class A	55/45	57	60
Class B	57/47	60	65
Class C	60/50	65	70

Source: Washington Administrative Code 173-60-040
EDNA = Environmental Designation for Noise Abatement

Table 3.11-2 shows a maximum noise limit of 60 dBA for a Class C noise source and a Class A receiving property, which is subject to a further reduction of 10 dBA during nighttime hours. The WAC regulatory limits are absolute and independent of the existing acoustic environment; therefore, an ambient sound survey is not required in order to determine conformance. However, based on the requirements under WAC 463-60-352 Built Environment – Environmental Health, and to describe and quantify the background noise environment, an ambient sound survey has been conducted for the Project. The original baseline survey was completed by Tetra Tech, commencing on December 22, 2020, and concluding on January 19, 2021 (Appendix O, Horse Heaven Wind Farm, LLC 2022). A supplemental baseline survey was completed by Tetra Tech to collect additional data, commencing on February 14, 2022, and concluding on March 1, 2022 (Appendix O, Horse Heaven Wind Farm, LLC 2022).

Table 3.11-2: Ln Environmental Noise Limits for Class C Sources

EDNA of Source Property	EDNA of Receiving Property			
	Limit	Ln25	Ln8.3	Ln2.5
Class A Land (day/night)	60/50	65/55	70/60	75/65
Class B Land	65	70	75	80
Class C Land	70	75	80	85

Source: Washington Administrative Code 173-60-040 (b) and (c)
EDNA = Environmental Designation for Noise Abatement; Ln2.5 = SPL exceeded 2.5% of the time; Ln8.3 = SPL exceeded 8.3% of the time ; Ln25 = SPL exceeded 25% of the time; SPL = sound pressure level

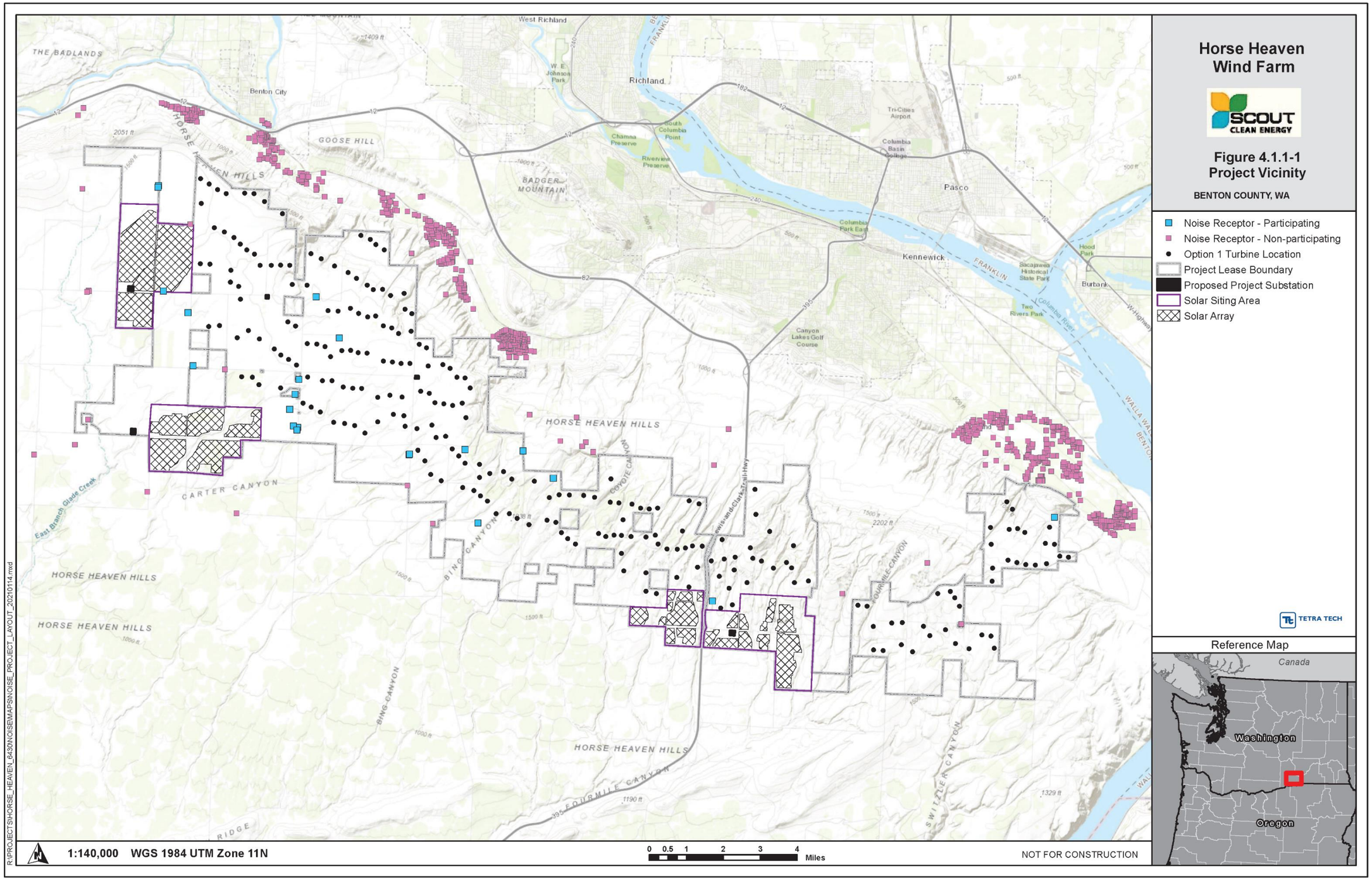
Benton County Code

Chapter 6A.15 of the Benton County Code provides language pertaining to public disturbance and nuisance noise; however, sounds originating from industrial or commercial activities, as well as construction or refuse removal equipment, are exempt (Benton County 2021). The code requires all projects to comply with all noise regulations under WAC 173-60.

3.11.1 Affected Environment

The Project Lease Boundary is dominated by rolling hills bisected by meandering canyons, some of which constitute ephemeral or intermittent drainages. The Horse Heaven Hills ridgeline lies along the northern border of

the Lease Boundary, particularly in the western portion. On the southern side of this ridge, the landscape transitions to relatively rolling topography with shallow, meandering canyons that drain southwest into the Columbia River. **Figure 3.11-1** provides an overview of the Project vicinity and provides the locations of all the nearby residences that are considered noise sensitive receptors (NSR). These receptors are used in Section 4.11 to assess the Project's compliance with WAC standards as a receiving property for noise. Types of NSR typically include residences, hospitals, schools, parks, and churches, and, for the purposes of this study, represent Class A EDNA receiving land uses. The assessment of impacts from the Proposed Action at NSR locations takes into consideration the current acoustic environment at the NSR, applicant commitments presented in 4.11, and future sources of noise.



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.11-1: Noise Sensitive Receptors in Project Vicinity

Variations in acoustic environment and vibration are due in part to:

- Existing land uses
- Population density
- Proximity to transportation corridors

Elevated existing ambient sound levels in the region occur near major transportation corridors such as Interstate 82 (I-82) and in areas with higher population densities such as Benton City or Kennewick (Horse Heaven Wind Farm, LLC 2022). The Lease Boundary is primarily open land or rural in nature and will have comparatively lower ambient sound levels, possibly 30 dBA or less during nighttime, due to the limited number of anthropogenic noise sources. Principal contributors to the existing acoustic environment likely include:

- Motor vehicle traffic
- Mobile farming equipment
- Farming activities such as plowing and irrigation
- All-terrain vehicles
- Local roadways
- Rail movements
- Periodic aircraft flyovers
- Natural sounds such as birds, insects, and leaf or vegetation rustle during elevated wind conditions

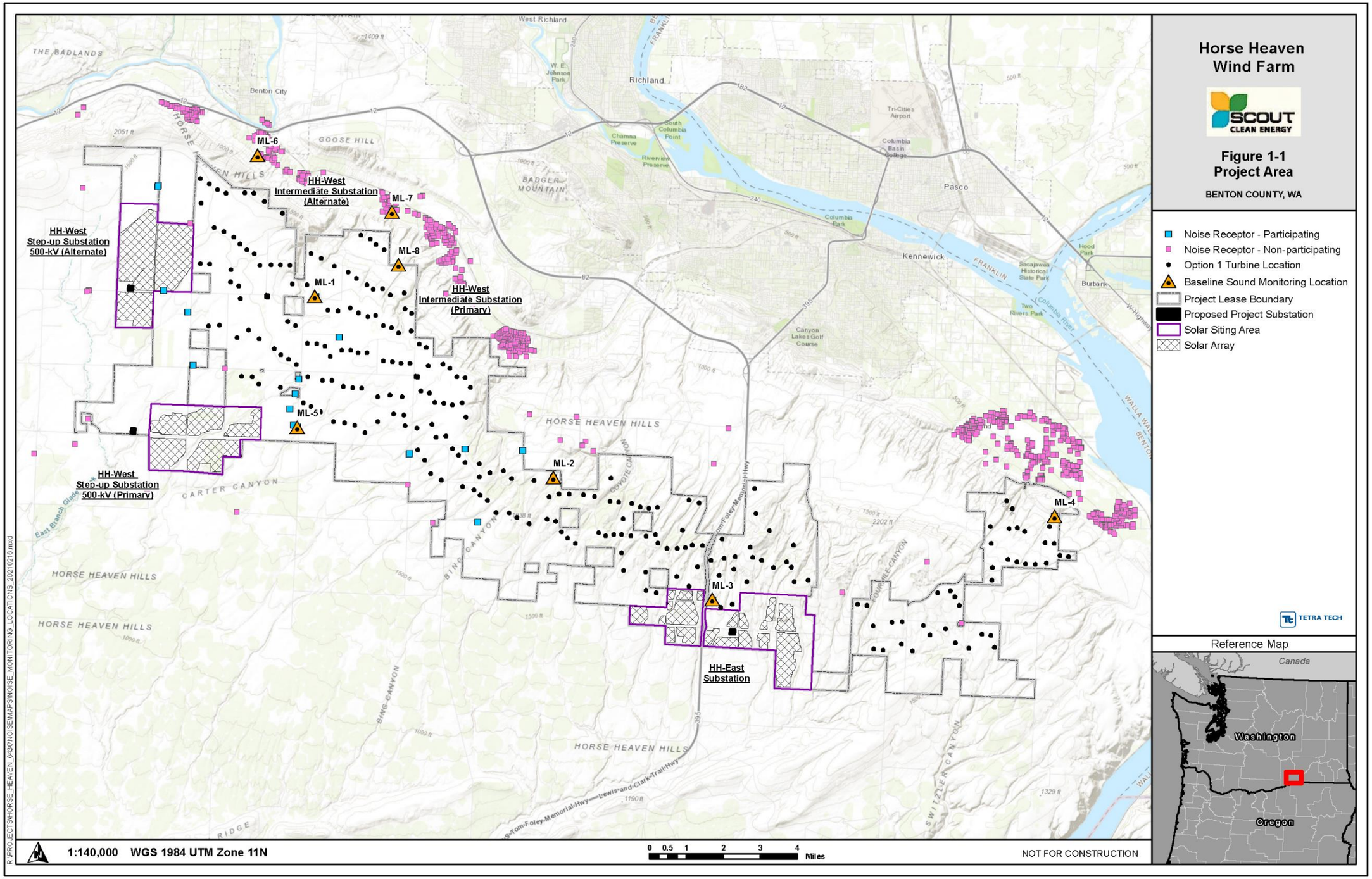
Noise sources are typically louder and more numerous during the daytime than at night—referred to as a “diurnal” pattern. This diurnal pattern typically results in sound levels that are quieter at night than during the daytime, except during periods when evening and nighttime insect noise dominate in warmer seasons.

Ground-borne vibration generated by human activities (e.g., rail and roadway traffic, operation of mechanical equipment and typical construction equipment) typically diminishes rapidly with distance from the vibration source. The Federal Transit Administration uses a screening distance of 100 feet for highly vibration-sensitive buildings (e.g., hospitals with vibration-sensitive equipment) and 50 feet for residential uses and historic buildings (FTA 2018). Vibration-sensitive receptors generally include historic buildings, buildings in poor structural condition, and uses that require precision instruments (e.g., hospital operating rooms or scientific research laboratories). Given the current land uses in the Project vicinity, existing vibrations in the area would be assumed to be at a typical background level and well below the human threshold of perception. No vibration measurements were collected for this study.

3.11.1.1 Ambient Noise Surveys

To document ambient sound levels within the Project Lease Boundary and vicinity, two baseline sound surveys were conducted by Tetra Tech. The original survey was submitted as an addendum to Appendix O of the Application for Site Certification in February 2021 and is included in Appendix O of the updated Application for Site Certification (Horse Heaven Wind Farm, LLC 2022). A supplemental noise survey was conducted to collect data at additional locations and is also included in Appendix O of the updated Application for Site Certification (Horse Heaven Wind Farm, LLC 2022). For these two surveys, seven NSR locations and one boundary location

were selected as monitoring positions for the baseline sound survey. These locations were selected because they are spatially distributed throughout the area and would represent the existing acoustic environment. **Figure 3.11-2** shows the Lease Boundary and vicinity and the location of the eight baseline sound monitoring stations.



Source: Appendix O, Horse Heaven Wind Farm, LLC 2022

Figure 3.11-2: Baseline Sound Monitoring Stations in Project Vicinity

The initial baseline sound survey commenced on December 22, 2020, and concluded on January 19, 2021. Data were collected at monitoring locations ML-1, ML-2, ML-3, ML-4, and ML-5 for a period of approximately 14 days within that window. A follow-up sound survey was conducted between February 14 and March 1, 2022, with data collected at ML-6, ML-7, and ML-8. Long-term baseline surveys are necessary to provide a statistically relevant data set, covering the full range of wind speeds and future operational scenarios. A 10-day monitoring period, weather permitting, provides a representative period to obtain baseline data set. The monitoring locations, dates, and sample type are presented in **Table 3.11-3** and **Figure 3.11-2**.

Table 3.11-3: Monitoring Locations Included in the Baseline Noise Study

Monitoring Location	Geographic Coordinates[(a)]		Location Description	Observations
	Latitude	Longitude		
ML-1	311134E	5117731N	Residence along Henson Road in Prosser	Quiet, with agricultural activities and sporadic noise from animals on site.
ML-2	321518E	5109850N	Residence along C Williams Road in Kennewick	Very quiet, with no roadway noise heard.
ML-3	328433E	5104539N	Residence along S. Bofer Canyon Road in Benton County	Some distant roadway noise from I-82.
ML-4	343329E	5108162N	Residence along Finley Road in Kennewick	Distant farming activity and noise from geese could also be heard.
ML-5	310369E	5112039N	Residence along S. Travis Road in Prosser	Moderate agricultural activity and semi-frequent road traffic along S. Travis Road.
ML-6	308632E	5123877N	Property along N McBee Road in Benton City	Local and distant road traffic.
ML-7	314483E	121403N	Residence along Canyon View Dr Northeast in Benton City	Minor agricultural activity, some construction, local traffic.
ML-8	314766E	119102N	Near Project Lease Boundary east of Dennis Road in Benton City	Infrequent agricultural activity.

Sources: Appendix O, Horse Heaven Wind Farm, LLC 2022
Notes:
[(a)] Universal Transverse Mercator Zone 11T
I-82 = Interstate 82; ML = Monitoring Location

Table 3.11-4 displays the average daytime and nighttime ambient sound levels for each monitoring location for wind speed conditions ranging from calm to maximum rotational wind speed. Ambient sound levels fluctuated constantly during both daytime and nighttime hours, but generally followed a diurnal pattern, and sound levels generally increased with the increase of wind speed. The “Cumulative” levels represent the average of all the monitoring locations at each wind speed condition.

Table 3.11-4: Baseline Sound Survey Results, Leq (Average dBA)

Monitoring Location	Time Period	Wind Speed (m/s)									
		3	4	5	6	7	8	9	10	11	12
ML-1	Day	32	32	33	33	34	35	36	37	38	39
	Night	33	33	34	35	36	37	38	39	40	41
ML-2	Day	33	33	33	32	32	32	33	33	33	33
	Night	31	32	32	32	33	33	34	34	34	34
ML-3	Day	48	48	47	47	47	47	47	47	47	47
	Night	42	43	44	45	46	46	47	48	48	48
ML-4	Day	38	38	39	39	39	40	40	40	40	40
	Night	36	37	37	38	38	38	39	39	39	39
ML-5	Day	45	45	45	45	44	44	44	44	45	45
	Night	39	39	39	39	39	39	40	40	41	41
ML-6	Day	42	42	43	44	44	45	46	47	48	49
	Night	39	40	41	43	44	45	46	47	48	49
ML-7	Day	37	37	38	39	40	41	42	43	44	45
	Night	30	32	34	36	37	39	41	42	44	45
ML-8	Day	32	34	36	38	40	42	44	46	48	50
	Night	25	28	32	34	37	40	42	44	47	49
Cumulative	Day	37	38	39	40	41	41	42	43	43	44
	Night	34	36	37	38	39	40	41	42	43	44

Source: March 2022 Baseline Sound Survey Report, Appendix O, Horse Heaven Wind Farm, LLC 2022
dBA = A-weighted decibels; Leq = the equivalent continuous sound pressure level averaged over the measurement period; ML = Monitoring Location; m/s = meters per second

- Location ML-1 – This location was an exception to the diurnal variation, with daytime noise levels ranging from 32 to 39 dBA and nighttime noise levels ranging from 33 to 41 dBA. Increases in daytime ambient sound levels at ML-1 can be attributed to the agricultural activities occurring on the site.
- Location ML-2 – Ambient sound levels were consistently low and ranged from 32 to 33 dBA during the daytime and 31 dBA to 34 dBA at night. While some sporadic on-site activity and roadway noise contributed to daytime sound levels, the ambient acoustic environment at ML-2 is quiet.
- Location ML-3 – Ambient sound levels were relatively higher due to this location's proximity to I-82 and range from 47 to 48 dBA during the daytime and 42 to 48 dBA at night. The maximum noise level represents noise generated from highway traffic being similar during the day and night. The greater range at night indicates lower frequency of traffic during that specific time period.
- Location ML-4 – Ambient sound levels were slightly higher during the day than at night and ranged from 38 to 40 dBA during the day and 36 to 39 dBA at night. This location best represents the more densely populated land uses in the Lease Boundary as it was located near the community of Finley, to the northeast of the Lease Boundary.
- Location ML-5 – Ambient sound levels exhibited typical diurnal variation but were affected by both nearby agricultural activity and traffic-related noise occurring on S. Travis Road and ranged from 44 to 45 dBA during the daytime and 39 to 41 dBA at night.

- Location ML-6 – Ambient sound levels were relatively higher due to this location's proximity to I-82 (less than 1 mile), local traffic, and proximity to a more densely populated area. The noise levels range from 42 to 49 dBA during the daytime and 39 to 49 dBA at night. The maximum noise level represents noise generated from traffic and higher wind speeds in a high-density vegetation area. This location best represents Benton City.
- Location ML-7 – Ambient sound levels were slightly higher during the day than at night and ranged from 37 to 45 dBA during the day and 30 to 45 dBA at night. The results suggest more anthropogenic noise sources during the daytime, with elevated noise levels coming from higher winds, local traffic, and equipment operations.
- Location ML-8 – Ambient sound levels exhibited typical diurnal variation and were also notably affected by wind speeds with higher noise levels mostly occurring during high wind events. The location is more remote, near the Project Lease Boundary and the noise levels ranged from 32 to 50 dBA during the daytime and 25 to 49 dBA at night. The results suggest that the monitoring area noise environment is less influenced by anthropogenic sources and more affected by wind driven noise.

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3.12 Recreation

This section describes the recreation uses and areas that would be affected by the proposed Horse Heaven Wind Farm (Project, or Proposed Action). Washington Administrative Code (WAC) 463-60-362 states that "the application shall list all recreational sites within the area affected by the construction and operation of the facility and shall then describe how each will be impacted by the construction and operation." Section 4.12 describes impacts on recreation that could result from the construction, operation, and decommissioning of the Proposed Action or No Action Alternative.

Background

Areas devoted to recreation provide people with the opportunity to engage with and enjoy the natural and built environment. Outdoor recreation is an important aspect of life for residents of the Horse Heaven Hills area, and it provides economic benefits to the communities. The Project's study area for recreation includes existing recreation resources and activities within the Project's Lease Boundary and the 25 miles surrounding the Lease Boundary. With the exception of 10 acres that the Washington State Department of Natural Resources (DNR) manages on behalf of the state's citizens, private entities own the entire 72,428 acres within the Lease Boundary.

Regulatory Setting

Laws and regulations used to determine the Project's potential impacts on recreation are summarized in **Table 3.12-1**.

Table 3.12-1: Laws and Regulations for Recreation

Regulation, Statute, Guideline	Description
Local	
Shoreline Management Master Program Regulations as required by RCW 90.58.080	Carries out responsibilities imposed on the respective cities and counties within the Shoreline Management Act of 1971.
County Comprehensive Plans as required by RCW 36.70A.010	Identifies goals, objectives, and policies to protect and maintain resources and preserve land use while promoting development, local coordination, and education.
State	
Washington Growth Management Act; RCW 36.70A	Establishes a series of 13 goals that should act as the basis of all comprehensive plans, including RCW 36.70A.020(9), which guides the use of open space and recreation for the purpose of retaining open space and green space, enhance recreational opportunities, enhance fish and wildlife habitat, increase access to natural resource lands and water, and develop parks and recreation facilities.
Washington State 2023 Recreation and Conservation Plan	Provides a strategic direction for how local, regional, state, and federal agencies, tribal governments, and private and nonprofit partners can work together to make sure Washington residents' outdoor recreation and conservation needs are met.
WAC 173-60-030	Establishes limits on sounds crossing property boundaries, based on EDNA. Includes Class A EDNA; where people reside and sleep, including residential and recreational areas (e.g., camps parks, camping facilities, and resorts).

Regulation, Statute, Guideline	Description
Fish and Wildlife; WAC 220	Introduces the WDFW and describes regulations promoting conservation of fish and wildlife, while providing fishing, hunting, fish and wildlife viewing, and other outdoor recreation opportunities compatible with healthy, diverse, and sustainable fish and wildlife populations (RCW 77.04.012, 77.04.020, 77.04.055).
RCW 77.04.012	Identifies the responsibility of the WDFW to conserve the wildlife and food fish, game fish, and shellfish resources in a manner that does not impair the resource.

EDNA= Environmental Designation for Noise Abatement; RCW= Revised Code of Washington; WAC = Washington Administrative Code; WDFW = Washington Department of Fish and Wildlife

Recreational facilities, defined by Revised Code of Washington 36.69.010, can include, but are not limited to:

- Parks
- Coliseums for the display of spectator sports
- Playgrounds
- Public campgrounds
- Gymnasiums
- Boat ramps and launching sites
- Swimming pools
- Public hunting and fishing areas
- Field houses
- Arboretums
- Bathing beaches
- Bicycle and bridle paths
- Stadiums
- Senior citizen centers
- Golf courses
- Automobile racetracks and drag strips
- Community centers
- Other recreational facilities

Comprehensive plans contain general goals, policies, and objectives applicable to the recreation resources within the study area. The following comprehensive plans influence recreational activities within the study area:

- Benton County Comprehensive Plan
- Franklin County Comprehensive Plan
- Walla Walla County Comprehensive Plan
- Umatilla County Comprehensive Plan
- Morrow County Comprehensive Plan
- Yakima County Comprehensive Plan
- Kennewick Comprehensive Parks and Recreation Plan
- City of Pasco Parks, Recreation, and Forestry Plan
- City of Richland Parks and Recreation Master Plan
- Benton City Comprehensive Plan
- City of Umatilla Comprehensive Land Use Plan
- City of Boardman Comprehensive Plan
- Hermiston Parks, Recreation and Open Space Master Plan
- City of Prosser Parks and Recreation Plan
- City of Grandview Comprehensive Plan
- City of Grandview Comprehensive Parks, Recreation and Open Space Plan

The county plans all identify goals, objectives, and policies that protect and maintain resources and preservation of land use while promoting development, local coordination, and education. For example, the Benton County Comprehensive Plan encourages the retention of open space and development of recreation opportunities, conservation of fish and wildlife habitat, increased access to natural resource lands and water, and development of parks (Benton County 2022a).

According to the Benton County Comprehensive Plan, Benton County currently owns, or operates under lease, ten park facilities on 2,384 acres providing outdoor recreational opportunities and amenities.

3.12.1 Affected Environment

The study area for recreation resources is in the southeastern portion of Washington and portions of northern Oregon and includes lands within the following counties:

- Benton County, Washington
- Franklin County, Washington
- Yakima County, Washington
- Walla Walla County, Washington
- Klickitat County, Washington
- Morrow County, Oregon
- Umatilla County, Oregon

These lands offer recreational opportunities, including parks and places for camping, hiking, hunting, fishing, boating, swimming, wildlife viewing (including bird watching), and recreational sports (e.g., paragliding). Activities related to each recreation site are discussed in the next sections under each land use administrator. **Figures 3.12-1 through 3.12-4** show the locations of recreation resources within the study area.

The following sections describe existing recreational opportunities and conditions in the study area, separated into three categories: county and private recreational opportunities, state recreational opportunities, and federal recreational opportunities.

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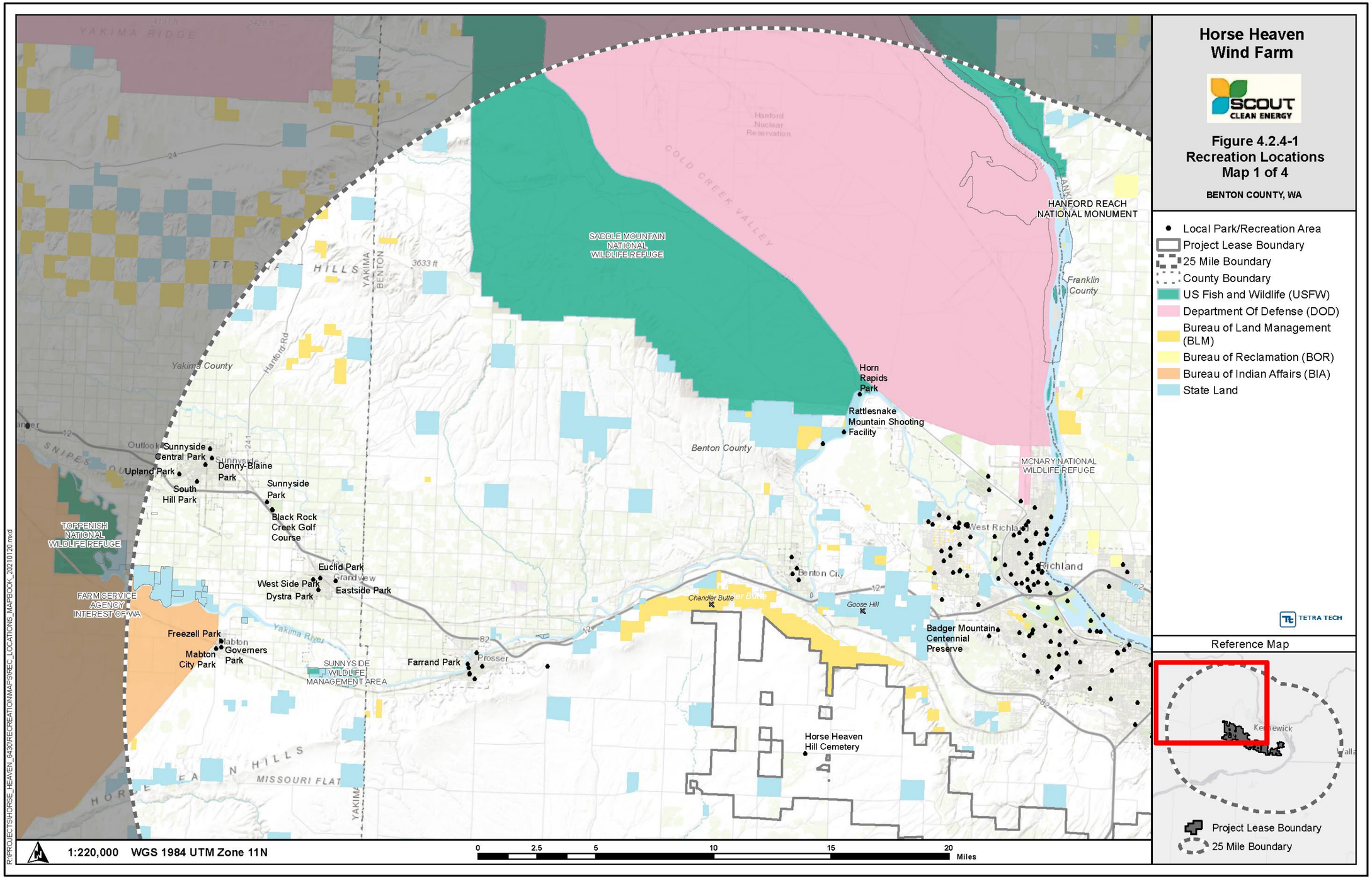
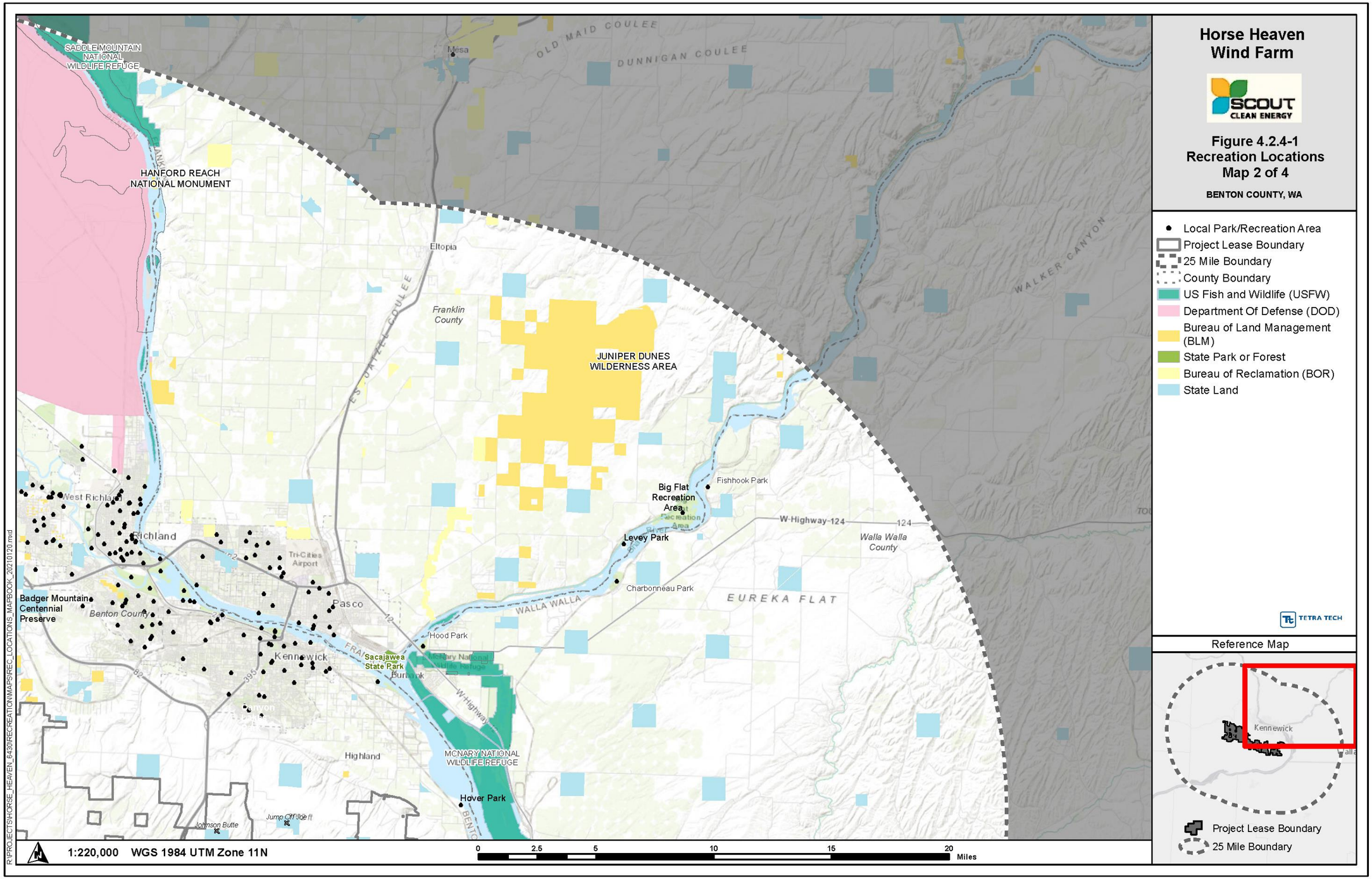


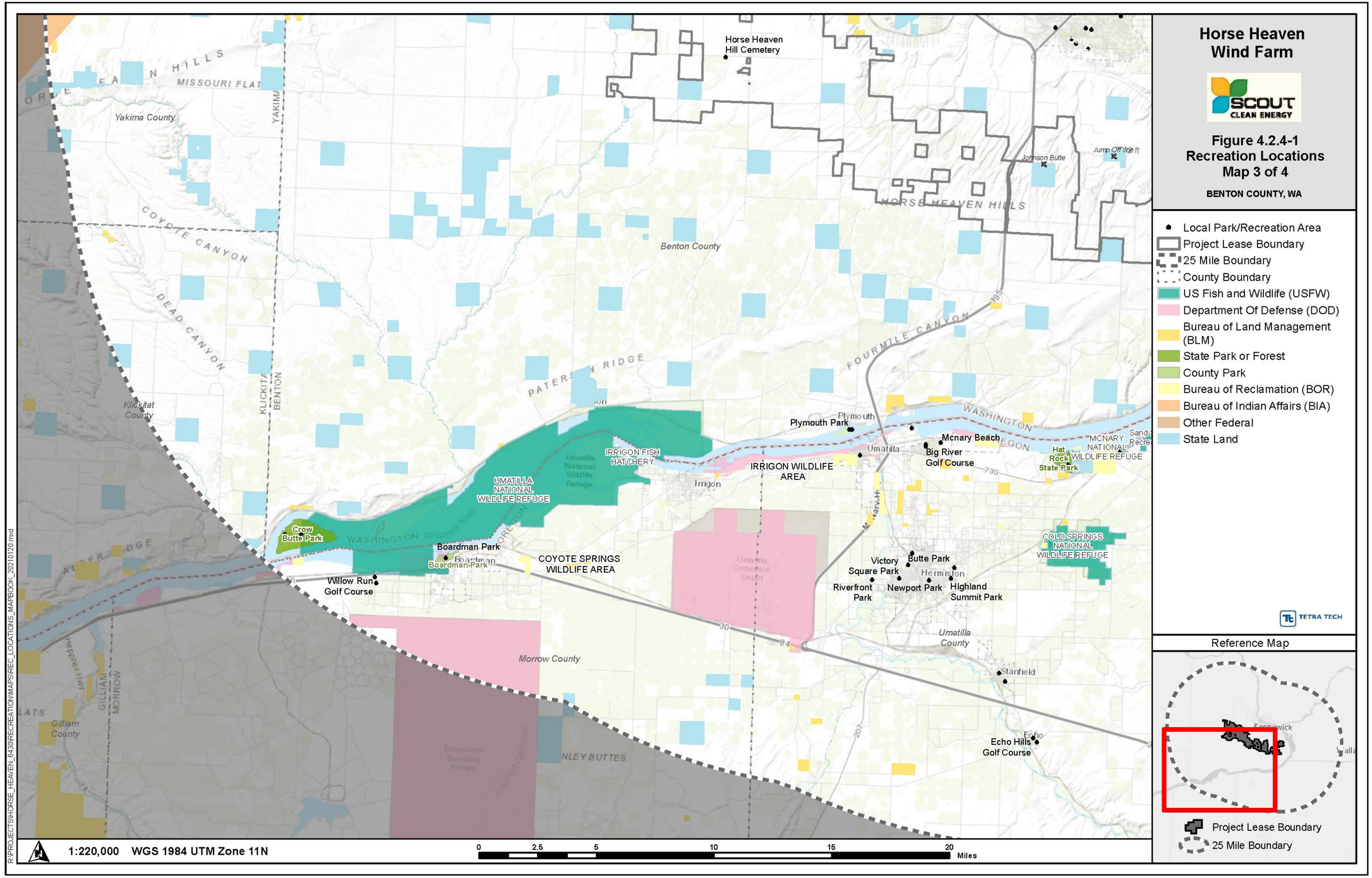
Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.12-1: Recreation Location Map 1 of 4



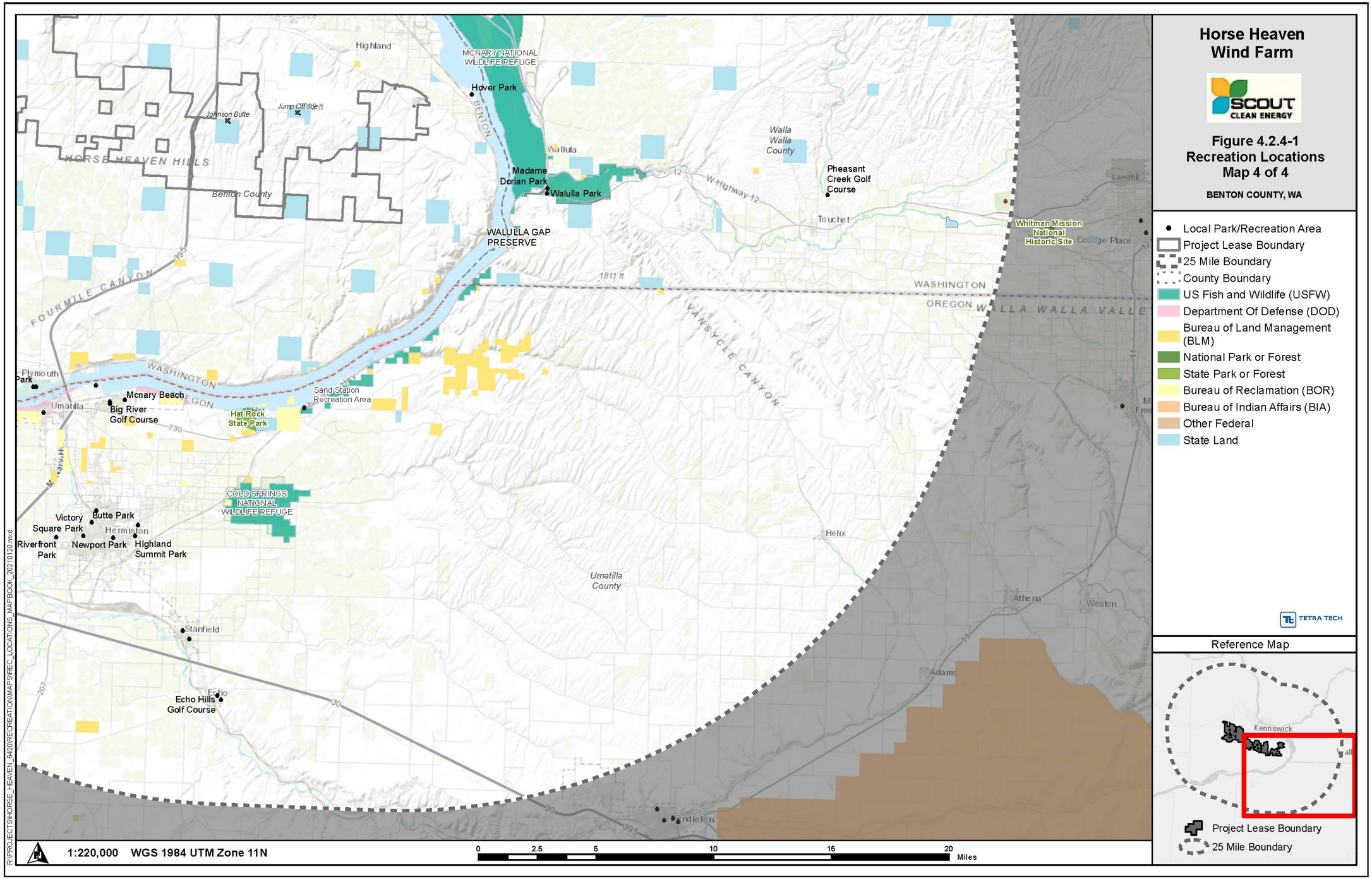
Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.12-2: Recreation Location Map 2 of 4



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.12-3: Recreation Location Map 3 of 4



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.12-4: Recreation Location Map 4 of 4

3.12.1.1 County and Private Resources

County and local lands in the study area that offer recreational activities include areas managed and operated by the counties and private landowners. **Table 3.12-2** summarizes the county and local recreation resources within the study area. While the demand for public recreational opportunities and facilities is increasing, improved public recreational trails are lacking throughout most of the rural County (Benton County 2022b).

Table 3.12-2: County and Regional Resources and Activities within the Recreation Study Area

Recreation Resource Name[(a)]	Management	Distance from Lease Boundary (nearest point of resource)	Description
Horse Heaven Cemetery	Benton County	Within Project Lease Boundary	A 2-acre historical burial ground established in 1893 and formed as a Benton County park in 2012. Offers a small hiking trail and a historic attraction.
Hover Park	Benton County	1.5 miles east	Presently undeveloped, Hover Park is located along the Columbia River on property leased from the U.S. Army Corps of Engineers. A day-use park that offers large areas of undeveloped scenic views, wildlife viewing, fishing, and small multi-use trails. The area also has historical significance. The first wagon train to the area, the Longmire Wagon Train, crossed the Columbia River on rafts near the park in 1853. The first major ferry crossing from Wallula was in the vicinity, and the park is near the original Hover town site, established in 1898.
Wallula Gap Preserve	Benton County	3 miles southeast	This National Natural Landmark is a preservation area that remains undeveloped and generally inaccessible.
Badger Mountain Centennial Preserve	Benton County	4 miles northwest	Offers large areas of undeveloped scenic views, bird watching, multi-use trails, and horseback riding.
Two Rivers Park	Benton County	4.5 miles northeast	Although owned by the U.S. Army Corps of Engineers, this facility is leased to Benton County. Offers playgrounds, open space, swimming, boating, golfing, hiking, bathroom facilities, and parking. Open year round, from 6 a.m. to 10 p.m. in the summer, and during daylight hours in the winter. Two Rivers is home to the last downstream developed boat launch in the Tri-Cities area and is used heavily throughout the year (Benton County 2022b).
Candy Mountain Preserve	Benton County	5 miles northwest	Offers large areas of undeveloped scenic views and small multi-use trails.
Vista Park	Benton County	5 miles northeast	Offers playgrounds, open space, bathroom facilities, and parking. Originally developed by the Vista Junior Women's Club in 1970, Vista is the County's smallest park.
Rattlesnake Mountain Shooting Facility	Benton County	8 miles northwest	Located on land leased by Benton County from Washington State and the BLM; offers various shooting discipline ranges. The Tri-City Shooting Association operates the Rattlesnake Mountain Shooting Facility on behalf of Benton County.

Table 3.12-2: County and Regional Resources and Activities within the Recreation Study Area

Recreation Resource Name[(a)]	Management	Distance from Lease Boundary (nearest point of resource)	Description
Horn Rapids Park	Benton County	9 miles northwest	An 800-acre site owned and operated by Benton County since the 1960s and the only Benton County park where overnight camping is available. In addition to the campground, Horn Rapids Park has a horse camp, model airplane facility, boat launch, and miles of multi-use trails.
Horse Heaven Vista	Benton County	7 miles west	Offers large areas of undeveloped scenic views and small hiking trails or biking.
Boardman Parks and Recreation District	Morrow County	20.1 miles southwest	A recreational area managed by Morrow County, Oregon. The site consists of over 100 acres of land available to the public and includes 5 day-use parks, boating, swimming, walking trails, and areas for RV camping.

Sources: Horse Heaven Wind Farm, LLC 2022; Benton County n.d.
Notes:
(a) There are 208 small local parks within the study area. These various parks are shown in **Figures 3.12-1 through 3.12-4** but are not listed individually in this table.
BLM = Bureau of Land Management; RV = recreational vehicle

The remaining recreation resources within the study area are all local facilities. Three of the 208 facilities are within 5 miles of the Lease Boundary:

- Canyon Lakes Golf Course (3.3 miles north of the Lease Boundary)
- Shark Reef Water Park (3.8 miles north of the Lease Boundary)
- Bombing Range Road Sports Complex (5 miles northeast of the Lease Boundary)

Local facilities provide recreational features, including playgrounds, fields, athletic courts, boat ramps, trails, and restrooms.

Multiple use paths are a popular feature within the study area. Badger Road runs 12 miles in Benton County, effectively connecting the Tri-City metropolitan area to Weber Canyon Road near Benton City, Washington. This route is popular with recreationists, particularly cyclists. Benton County is proposing to add two 6-foot-wide bike lanes along 7 miles of Badger Road, from the City of Kennewick to Dallas Road. Currently, several cycling organizations use this route for events. The road is also listed as a popular route on maps produced by the Benton Franklin Council of Governments. These maps also indicate that the route merits caution in its current form due to the condition of the road (e.g., lack of bike lanes) and amount of traffic (Benton County 2022b).

3.12.1.2 State of Washington and Oregon Resources

State lands that offer recreational activities in the study area include:

- Washington State Department of Natural Resources
- Washington State Parks

- Oregon Parks and Recreation Department
- Oregon Department of Fish and Wildlife

Table 3.12-3 summarizes the state recreation resources within the study area.

Table 3.12-3: State Resources and Activities within the Recreation Study Area

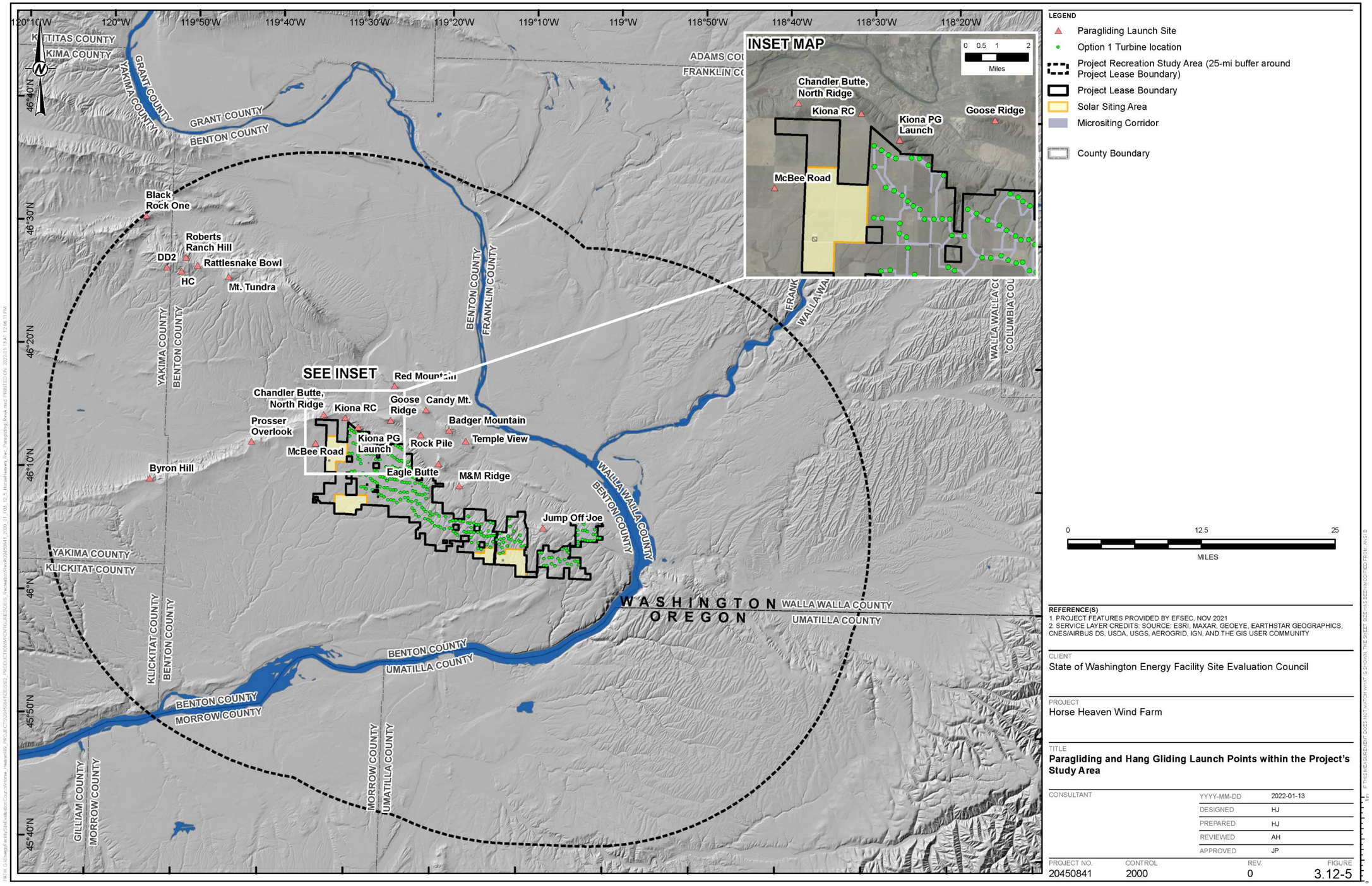
Recreation Resource Name	Management	Distance from Lease Boundary (nearest point of resource)	Description
Johnson Butte	DNR	Within Project Lease Boundary	A low-elevation mountain peak that offers unofficial hiking opportunities, as well as paragliding launch points.
Jump Off Joe Butte	DNR	1.5 miles east	A low-elevation mountain peak that offers unofficial hiking opportunities, as well as paragliding launch points.
Goose Hill Butte	DNR	2 miles northwest	A low-elevation mountain peak that offers unofficial hiking opportunities, as well as paragliding launch points.
Sacajawea Historical State Park	Washington State Parks	5.2 miles north	A 267-acre day-use park with hiking trails, restroom facilities, boating, and camping activities.
Hat Rock State Park	OPRD	8.1 miles south	A day-use area offering picnicking sites, wildlife viewing, fishing, boating, hiking, and restroom facilities on the south shore of Lake Wallula.
Irrigon Wildlife Area	ODFW	11 miles southwest	Part of the greater Columbia Basin Wildlife Area, Irrigon is a 979-acre day-use site for hunting, fishing, wildlife viewing and some accommodations for camping.
Coyote Springs Wildlife Area	ODFW	21 miles southwest	Part of the greater Columbia Basin Wildlife Area, the Coyote Springs Wildlife Area encompasses approximately 160 acres and offers day-use activities, including hunting, with some accommodations for camping.

Sources: ODFW 2008, 2022; DNR 2023 Horse Heaven Wind Farm, LLC 2022; OSP 2022; Washington State Parks n.d.(a), n.d.(b)
Notes:
The DNR also manages lands within the Lease Boundary that are accessible for public hunting. The Washington Department of Fish and Wildlife oversees game management units on DNR-managed lands.
DNR = Washington State Department of Natural Resources; ODFW = Oregon Department of Fish and Wildlife; OPRD = Oregon Parks and Recreation Department

Paragliding and Hang Gliding

Hang gliding, paragliding, and cross-country parasailing occur at approximately 20 locations within the study area on both state and federally managed lands, as shown in **Figure 3.12-5**. Launch sites nearest to the Lease Boundary follow Kiona Ridge (officially known as Chandler Butte), McBee Road, and starting to the west of the Bureau of Land Management (BLM)-administered McBee Trailhead. It is estimated that roughly 100 individuals may launch from Kiona Ridge in a year (Horse Heaven Wind Farm, LLC 2022). Flights from Kiona Ridge are logged voluntarily by pilots using a global flight database, which shows 300 flights since 2010 from Kiona Ridge with a variety of flight paths and landing locations (Paragliding Forum n.d.). Both federal and state agencies are

aware that paragliders and hang gliders launch from lands near the Lease Boundary, and no permit is required so long as it is “casual use” (Smith 2021). From Kiona Ridge, gliders typically launch south and land north of the ridge, although landing sites can cross the Lease Boundary. Depending on wind and weather conditions, cross-country gliders can fly to the Columbia River and across into Oregon.



REFERENCE(S)
1. PROJECT FEATURES PROVIDED BY EFSEC, NOV 2021
2. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Paragliding and Hang Gliding Launch Points within the Project's Study Area

CONSULTANT

YYYY-MM-DD	2022-01-13
DESIGNED	HJ
PREPARED	HJ
REVIEWED	AH
APPROVED	JP

PROJECT NO.	CONTROL	REV.	FIGURE
20450841	2000	0	3.12-5

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Figure 3.12-5: Paragliding and Hang Gliding Launch Points within the Recreation Study Area

3.12.1.3 Federal Resources

This section reviews recreational areas designed, constructed, designated, or used for recreational activities. This assessment does not include protected lands held for potential mining and logging use or restricted lands, although these lands may be used by recreationists (hunters, fishers, etc.). Federal lands that offer recreational activities include the lands administered by the BLM, U.S. Fish and Wildlife Service, National Park Service, and U.S. Army Corps of Engineers. **Table 3.12-4** summarizes the federal recreation resources within the study area. Land within the study area is identified by BLM public data as "an undeveloped watchable wildlife and watchable wildflowers area. Popular with locals, it is primarily used for hiking, nature viewing, photography, and mountain biking" (BLM n.d.).

Table 3.12-4: Federal Resources and Activities Publicly Accessible within the Study Area

Recreation Resource Name	Management	Distance from Lease Boundary (nearest point of resource)	Description
McBee Trailhead (Horse Heaven Hills)	BLM	1.5 miles northwest	A non-designated hiking and biking trail adjacent to the Project's Lease Boundary. Paragliding and hang gliding are known to occur near this location.
Chandler Butte	BLM	1.8 miles northwest	A low-elevation mountain peak that offers unofficial hiking opportunities, as well as paragliding launch points.
Juniper Dunes OHV Area / ACEC Wilderness Area	BLM	15.3 miles northeast	A BLM-administered, 19,600-acre land package that comprises 3,920 acres of loose-sand riding for OHVs.
Ice Age Floods National Geologic Trail	NPS	Varies[(a)]	Details regarding routes and features provided in **Table 3.12-3**.
Hood Park	USACE	6.5 miles northeast	A campground that offers boating, fishing, and swimming activities.
Sand Station Recreation Area (Lake Wallula)	USACE	8 miles south	A day-use facility that offers boating, fishing, and swimming activities.
Charbonneau Park	USACE	12.5 miles northeast	A campground that offers boating, fishing, and swimming activities.
Fishhook Park	USACE	18.5 miles northeast	A campground that offers boating, fishing, and swimming activities.
Crow Butte Park	USACE	22.2 miles southwest	A campground that offers boating, fishing, and swimming activities.
McNary National Wildlife Refuge	USFWS	2.7 miles east	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.

Table 3.12-4: Federal Resources and Activities Publicly Accessible within the Study Area

Recreation Resource Name	Management	Distance from Lease Boundary (nearest point of resource)	Description
Saddle Mountain National Wildlife Refuge	USFWS	8.7 miles north	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.
Cold Springs National Wildlife Refuge	USFWS	11.3 miles south	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.
Umatilla National Wildlife Refuge	USFWS	11.4 miles southwest	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.
Irrigon Fish Hatchery	USFWS	13.9 miles south	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.
Hanford Reach National Monument	USFWS	14.3 miles north	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.
Sunnyside Wildlife Management Area	USFWS	15 miles west	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.
Washington Farm Service Agency Tracts	USFWS	24.7 miles west	A day-use facility, except as modified by fishing and hunting regulations. Recreational activities include fishing, hunting, watching wildlife, and hiking.

Sources: USFWS n.d.(a), n.d.(b), n.d.(c), n.d. (d); Horse Heaven Wind Farm, LLC 2022; BLM n.d.; USACE n.d.(a), n.d.(b), n.d.(c), n.d.(d)
Notes:
(a) Features of the Ice Age Floods National Geologic Trail within the study area are further detailed in **Table 3.12-5.**
ACEC = Area of Critical Environmental Concern; BLM = Bureau of Land Management; OHV = off-highway vehicle; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service

Ice Age Floods National Geologic Trail

The Ice Age Floods National Geologic Trail (IAF-NGT) is a network of geological features left behind by a series of cataclysmic floods that occurred at the end of the most recent Ice Age, when glacially dammed lakes ruptured and large volumes of water rushed through the northwestern United States (NPS 2014; IAFI 2021). Although there are no IAF-NGT routes or features within the Lease Boundary, there are primary and secondary routes and features within the study area. The primary and secondary IAF-NGT routes and features within the study area are shown in **Figures 3.12-6 through 3.12-9.**

The route of the trail, designated by the Omnibus Public Land Management Act of 2009, encompasses several federal and state highways, National Scenic Byways, and multiple loops and spurs across a vast, varied landscape with more than 350 sites and features created by the Ice Age floods (NPS 2014).

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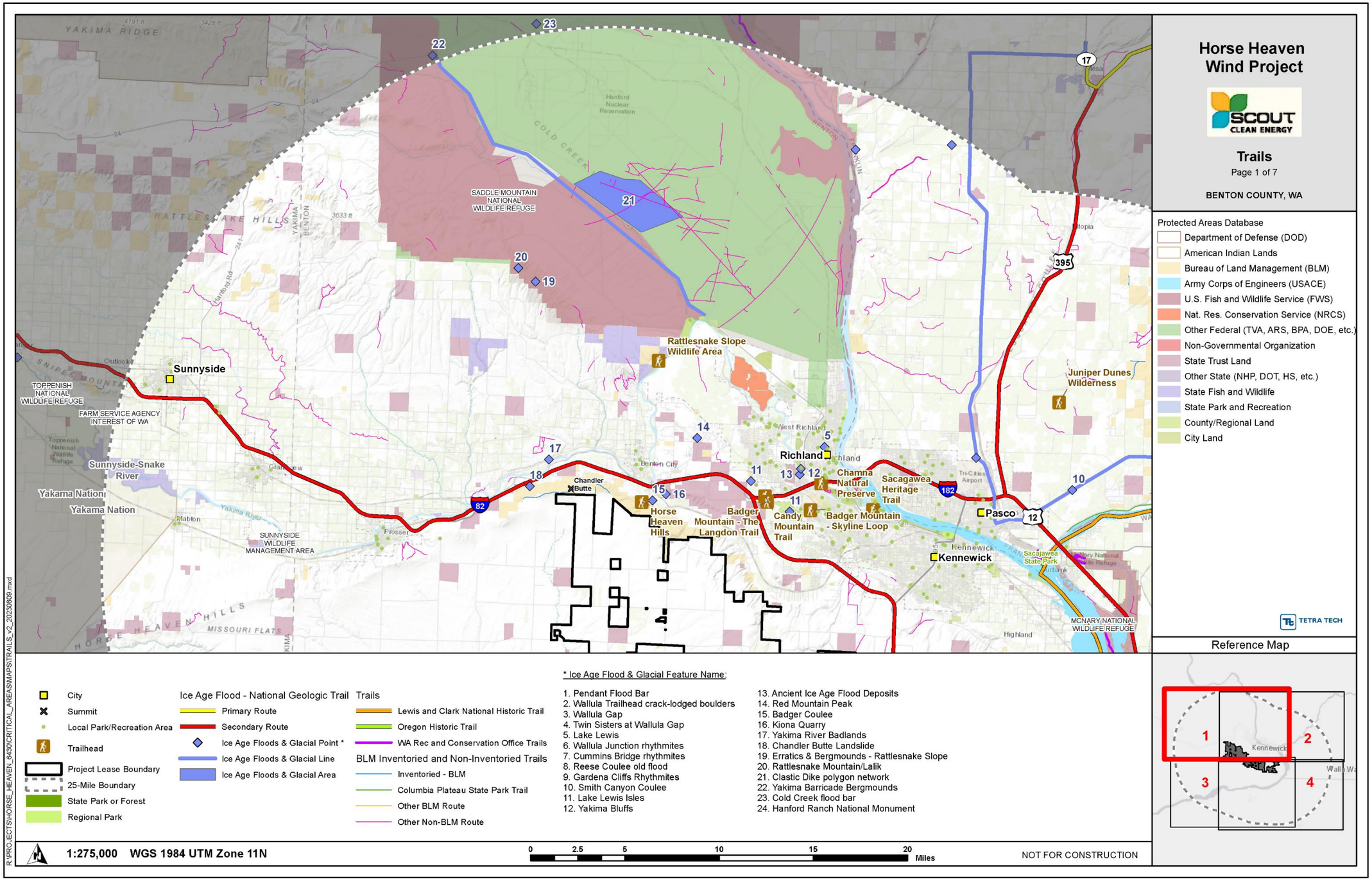
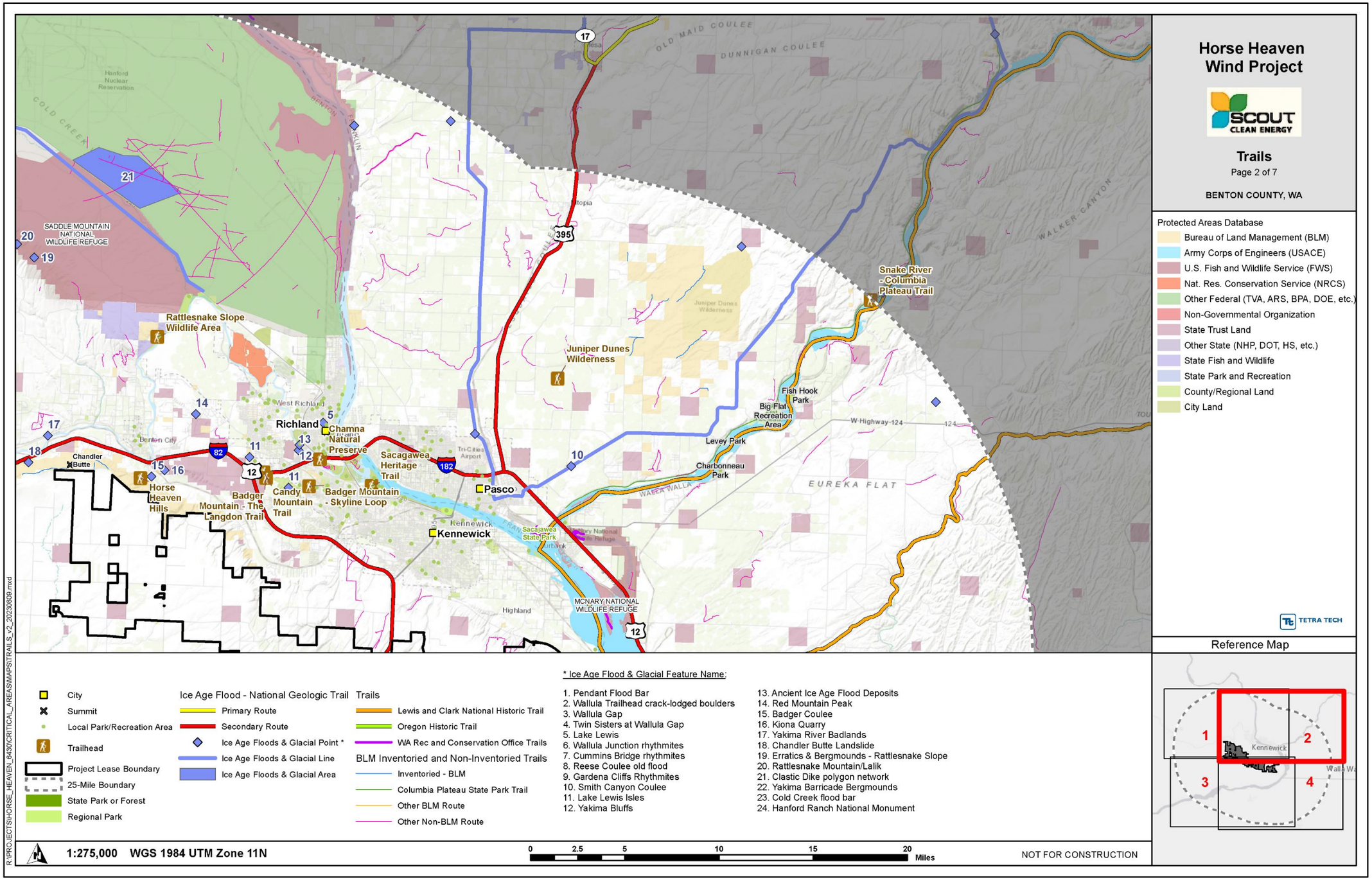


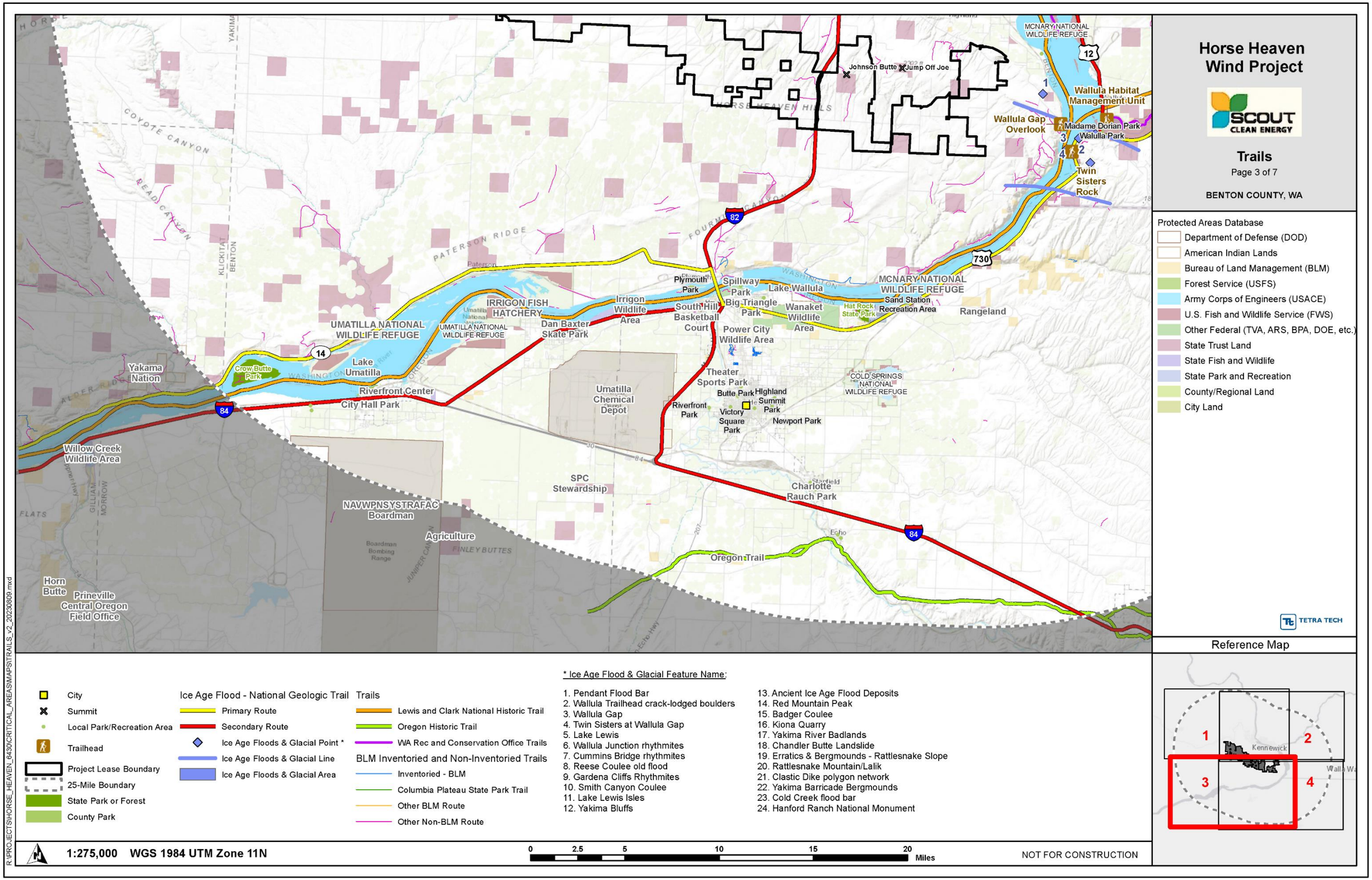
Source: Horse Heaven Wind Farm, LLC 2023

Figure 3.12-6: IAF-NGT Features within the Study Area, Map 1 of 4



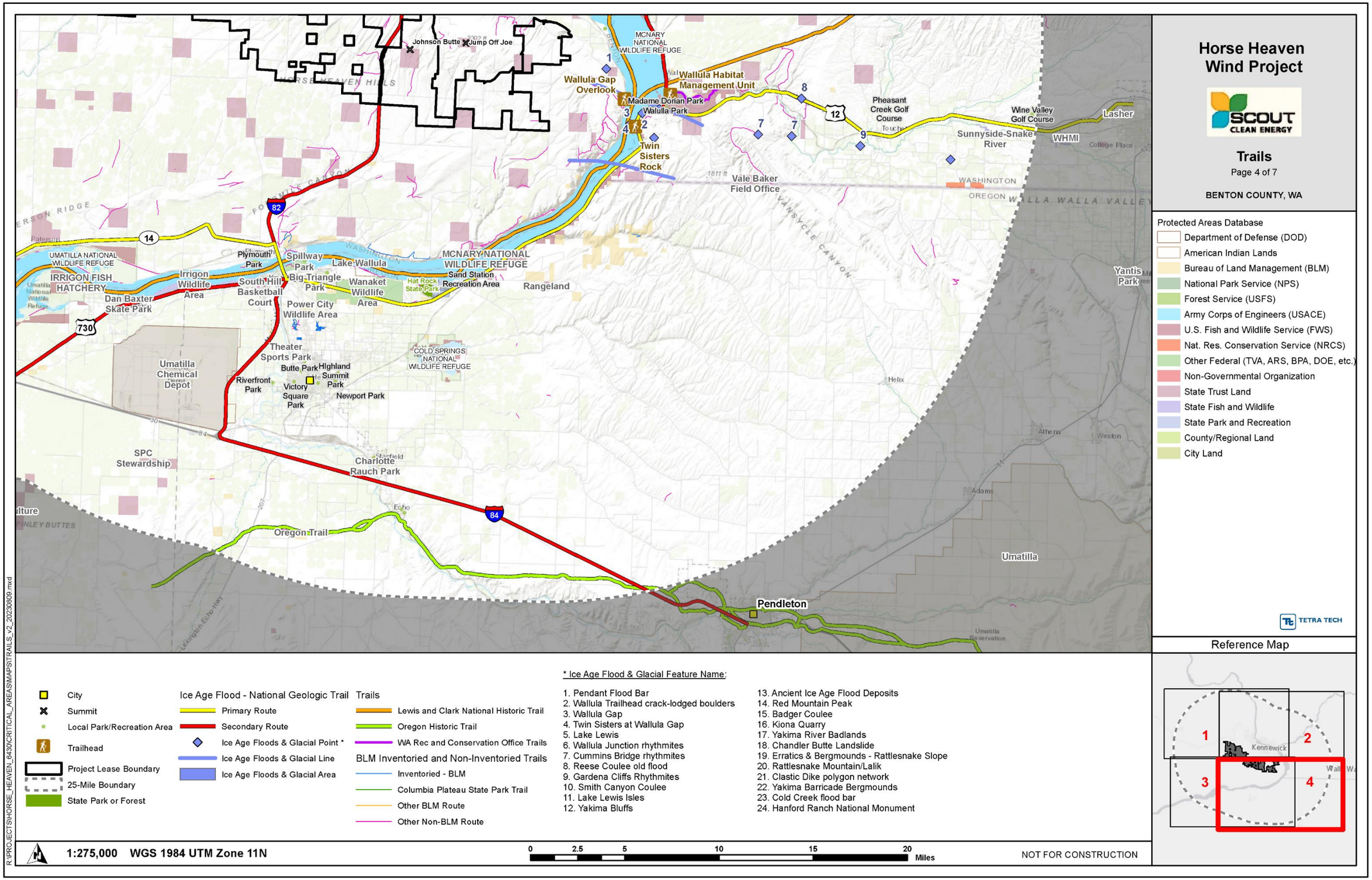
Source: Horse Heaven Wind Farm, LLC 2023

Figure 3.12-7: IAF-NGT Features within the Study Area, Map 2 of 4



Source: Horse Heaven Wind Farm, LLC 2023

Figure 3.12-8: IAF-NGT Features within the Study Area, Map 3 of 4



Source: Horse Heaven Wind Farm, LLC 2023

Figure 3.12-9: IAF-NGT Features within the Study Area, Map 4 of 4

The pathways of these floods extend more than 1,300 linear miles across the region. They begin in the intermountain valleys of western Montana and traverse northern Idaho, central and eastern Washington, and northern Oregon to the coast near Cape Disappointment. The IAF-NGT is one of the few national trails in the United States that focuses on natural, rather than human, history (NPS 2014). The IAF-NGT routes and features and their distances from the Lease Boundary are shown in **Table 3.12-5**.

Table 3.12-5: Ice Age Floods National Geologic Trail Resources within the Recreation Study Area

Feature #[(a)]	IAF-NGT Features within Study Area	Approximate Distance from Lease Boundary (miles)
1	Pendant Flood Bar	1.97
2	Wallula Trailhead crack-lodged boulders	4.73
3	Wallula Gap	4.29
4	Twin Sisters at Wallula Gap	4.61
5	Lake Lewis	7.67
6	Wallula Junction rhythmites	5.37
7	Cummins Bridge rhythmites	10.72
8	Reese Coulee old flood	12.44
9	Gardena Cliffs Rhythmites	16.06
10	Smith Canyon Coulee	9.48
11	Lake Lewis Isles	4.09
12	Yakima Bluffs	5.96
13	Ancient Ice Age Flood Deposits	5.74
14	Red Mountain Peak	4.83
15	Badger Coulee	0.84
16	Kiona Quarry	1.42
17	Yakima River Badlands	1.87
18	Chandler Butte Landslide	1.46
19	Erratics & Bergmounds - Rattlesnake Slope	11.32
20	Rattlesnake Mountain / Lalik	12.15
21	Clastic Dike polygon network	14.17
22	Yakima Barricade Bergmounds	24.17
23	Cold Creek flood bar	24.96
24	Hanford Ranch National Monument	8.52

Source: Horse Heaven Wind Farm, LLC 2022
Notes: (a) As depicted in **Figures 3.12-6 through 3.12-9**
IAF-NGT= Ice Age Flood National Geologic Trail

The IAF-NGT feature nearest to the Lease Boundary is Badger Coulee, located approximately 0.84 miles north. The Badger Coulee feature is a 15-mile-long valley, a former course of the Yakima River before the Ice Age flood deposits. Other features near the Lease Boundary are the Kiona Quarry, Yakima River Badlands, Chandler Butte Landslide, and Pendant Flood Bar. The IAF-NGT secondary route of Interstate 82 bisects the eastern portion of the Lease Boundary.

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3.13 Public Health and Safety

This section describes existing public health and safety resources in the proposed Horse Heaven Wind Farm (Project, or Proposed Action) vicinity. This evaluation of public health and safety resources was prepared in alignment with Washington Administrative Code (WAC) 463-60-352 and focuses on the availability of public service agencies and medical facilities (e.g., law enforcement, fire protection, and medical emergency services) within the vicinity of the Project Lease Boundary. Potential impacts on identified public health and safety resources are evaluated in Section 4.13.

Regulatory Setting

WAC 463-60-352 sections (1) through (6) require an applicant for site certification to provide information pertaining to the following:

- Noise, also required under the Washington State Environmental Policy Act (SEPA) in WAC 197-11-960(7)(b) (WAC 463-60-352[1])
- Risk of fire or explosion, also required under SEPA in WAC 197-11-960(7) (WAC 463-60-352[2])
- Potential releases to the environment affecting public health (such as toxic or hazardous materials), also required under SEPA in WAC 197-11-960(7) (WAC 463-60-352[3])
- Safety standards compliance (WAC 463-60-352[4])
- Radiation levels (WAC 463-60-352[5])
- Emergency plans, also required under SEPA in WAC 197-11-960(7) (WAC 463-60-352[6])

SEPA also requires an applicant to address the potential increased need for public services (WAC 197-11-960[15]).

Additional Washington State regulations pertaining to the health and safety of the public include:

- State Building Code Adoption and Amendment of the 2021 Edition of the International Fire Code (WAC Chapter 51-54A)
- Radiation Protection (WAC 246-220, WAC 246-221)
- Pollution Prevention Plans (WAC 173-307)

The Benton County Code (BCC) provides regulations related to public health and safety, as follows:

- Energy Code (BCC Chapter 3.14)
- Fire Code (BCC Chapter 3.16)
- Public Nuisance - Noise (BCC Chapter 6A.15)

3.13.1 Affected Environment

The Lease Boundary is located in Benton County, which is in southeastern Washington State. The Columbia River bounds Benton County to the north, east, and south, while Klickitat and Yakima Counties bound Benton County to the west. Benton County lands are primarily rural and agricultural, with unincorporated areas making up most of the land. The Lease Boundary lies south of the Tri-Cities—Kennewick, Pasco, and Richland, Washington.

The Project would be situated on vacant land with dryland agricultural vegetation cover and few trees. Limited areas within the Lease Boundary contain historically recognized environmental conditions[25], which have been cleaned up to the satisfaction of applicable agencies (see Appendix C of the 2022 ASC for further details about the cleanup) and would be avoided during construction (Horse Heaven Wind Farm, LLC 2022). The Williams Northwest Pipeline, an underground interstate gas transmission pipeline, traverses the Lease Boundary. Turbines and the solar array would be set back from this pipeline. At a minimum, Project elements would be located outside the pipeline right-of-way, which extends 55 feet to the east and 20 feet to the west of the pipeline. Construction of the Project would not impact the pipeline's operations. Underground collector lines and communications (supervisory control and data acquisition [SCADA]) for the Project would cross above the pipeline. Horse Heaven Wind Farm, LLC (Applicant) would coordinate with Williams (the pipeline owner and operator) on construction specifications and would obtain their approval prior to crossing the pipeline.

The following sections describe the authorities or entities tasked with ensuring public health and safety in the Lease Boundary vicinity within Benton County.

3.13.1.1 Public Services

Emergency Management Services

Benton County Emergency Services is made up of two divisions: the Southeast Communications Center (SECOMM) and Benton County Emergency Management (BCEM). The two divisions assist emergency responders and promote community safety (Benton County n.d.).

- **SECOMM**: SECOMM's responsibilities include providing dispatch services to all law enforcement, fire and emergency management services, and emergency response agencies (including 9-1-1 response) within Benton and Franklin Counties. SECOMM is the 9-1-1 dispatch center for the following emergency service agencies in the vicinity of the Lease Boundary:
  - Kennewick Police and Fire
  - Richland Police and Fire
  - Pasco Police and Fire
  - Benton County Sheriff's Office
  - Benton County Fire Protection Districts 1, 2, 4, 5, and 6
- **BCEM**: The primary responsibility of BCEM is to minimize the impact of disasters on the people, property, economy, and environment of Benton County. BCEM's activities include comprehensive disaster planning, preparedness education, training, and resource coordination. In addition to hazards such as wildfires and floods, BCEM plans and prepares for emergencies at the Hanford decommissioned nuclear production site and the Columbia Generating Station.

[25]A "historically recognized environmental condition" is a previous release of hazardous substances or petroleum products affecting the subject property that has been addressed to the satisfaction of the applicable regulatory authority or authorities and meeting unrestricted use criteria established by the applicable regulatory authority or authorities without subjecting the subject property to any controls (for example, activity and use limitations or other property use limitations). A historically recognized environmental condition is not considered a "recognized environmental condition," meaning a condition where a hazardous substance or petroleum product is present or likely to be present in, on, or at the subject property. (ASTM E1527-21)

Law Enforcement

Law enforcement comprises the agencies and employees responsible for enforcing laws, maintaining public order, and managing public safety. The primary duties of law enforcement include the investigation, apprehension, and detention of individuals suspected of criminal offenses. The following state and local agencies have law enforcement service areas covering the Lease Boundary vicinity:

- **Benton County Sheriff's Office**: The Benton County Sheriff's Office Bureau of Law Enforcement is made up of 60 commissioned deputies and 10 non-commissioned employees. The Patrol Division consists of a Patrol Lieutenant overseeing 34 deputies and is responsible for providing an initial response to all requests for service received by the Sheriff's Office. The Patrol Division also performs the following:
  - Conducts the initial investigation of all reported crimes within the agency's jurisdiction
  - Conducts traffic enforcement and traffic accident investigations
  - Provides emergency response to assist with natural and human-caused disasters, often in conjunction with other area law enforcement and fire rescue agencies

The Detective Division handles all major crime investigations within the Sheriff's Office's jurisdiction and internal investigations into the conduct of the Sheriff's deputies. The Civil Division processes and serves court papers, and the Records Division processes the investigative reports prepared by the Patrol Division.

- **Kennewick Police Department**: The Kennewick Police Department has a Patrol Division with four 12-officer squads that provide professional law enforcement services to the community. These services include crimes in progress, investigations, traffic enforcement, and other emergency and non-emergency calls. The Criminal Investigation Division is responsible for investigating felony crimes and high-profile cases (including, but not limited to, homicides, assaults, armed robberies, arsons, burglaries, kidnappings, internet crimes, auto thefts, identity theft, and other felony crimes). The Administrative Services Division is responsible for employment (in conjunction with the City's Human Resources Department), training, internal affairs, and animal control authority, among other administrative services.
- **Washington State Patrol District 3:** District 3 comprises the seven southeastern counties of Washington State (including Yakima, Benton, and Franklin counties), covering over 900 miles of state and interstate highways, and shares borders with Oregon and Idaho. More than 140 employees are assigned, providing an array of law enforcement and investigation services. District 3 operates from four detachment offices across the state, the closest of which is in Kennewick.

Fire Protection

The five incorporated communities and portions of the remaining unincorporated area of Benton County are served by municipal and rural fire departments. Richland and Kennewick municipal fire departments are operated by full-time fire personnel. Prosser, Benton City, and West Richland operate with full and part-time positions, along with volunteer staff. The unincorporated areas of Benton County are served by six fire districts that are primarily staffed by volunteer personnel.

The Lease Boundary primarily falls within the jurisdiction of Fire Districts #1 and #5.

- **Benton County Fire District #1:** Fire District #1 protects an area of approximately 320 square miles south of Kennewick, Richland, and West Richland and serves a population of approximately 17,500 residents,

including the communities of Finley, South Kennewick, El Rancho Reata, and Badger Canyon. Through a Cooperative Agreement with the Bureau of Land Management (BLM) Spokane District, the Fire District also responds with fire suppression forces to 66,742 acres of BLM land in Benton, Franklin, and Yakima Counties. Within District #1 are residential areas, commercial and industrial complexes, educational facilities, agricultural areas, wildland areas, and zones of interfaces between urban and wildland/agriculture uses. District #1 has 13 career staff and 90 dedicated volunteer firefighters, officers, emergency medical technicians, first responders, and support personnel serving out of six fire stations. District #1 averages 1,350 calls for service each year, 55 percent of which are for emergency medical services and the remainder for fire. The potential for District #1 to experience a substantial wildland fire is high.

- **Benton County Fire District #5:** Benton County Fire District #5 covers an area of approximately 400 square miles and is primarily a wildland fire agency, with some urban/suburban interface with neighboring agencies. Fire District #5 also responds to vehicle accidents and provides some non-ambulance emergency medical services but relies on neighboring fire agencies for structure firefighting. District #5 operates out of four main stations with approximately 20 volunteers.

Both districts are part of the Tri-County Master Mutual Aid Agreement, including all fire departments and fire districts within Benton, Franklin, and Walla Walla Counties. Mutual aid agreements allow a jurisdiction to provide resources, facilities, services, and other required support to another jurisdiction during an incident (for example, Franklin County Fire District 3 responds to calls for wildland fires in Franklin County and across the Tri-Cities).

3.13.1.2 Health Services

Benton County residents receive in-patient care at three general hospitals in Kennewick, Prosser, and Richland. The Lease Boundary vicinity falls within the jurisdiction of the Kennewick and Prosser Hospital Districts. A Hospital District directed by elected board members operates each of the Kennewick and Prosser hospitals.

- The Kennewick Hospital District provides healthcare services for its district or service area by contracting these services from RCCH Health Care Partners/Trios (RCCH). RCCH operates two hospitals and several related facilities in Kennewick. The two hospitals are the 74-bed Trios Southridge Hospital, which opened in 2014, and the older 37-bed Trios Women's and Children's Hospital. Classified as a Level III[26] Adult Trauma Center, Trios Southridge Hospital offers 24-hour emergency room services, seven days a week, with 27 emergency treatment rooms. Emergency departments are designated by the resources they have available to treat cases of traumatic injury.
- Prosser Memorial Hospital is a critical access hospital with 25 beds. Classified as a Level IV Adult Trauma Center, Prosser Memorial Hospital offers 24-hour emergency room services seven days a week. A Level IV designation means that the department can provide advanced life support measures to stabilize a trauma patient enough to be transported to another facility, if necessary. Prosser Memorial Hospital's emergency medical services team provides western Benton County with primary 911 emergency treatment and ambulance transportation to local area hospitals.

[26] A Level III designation means that the department can provide prompt assessment, resuscitation, surgery, intensive care, and stabilization of injured patients.

- Kadlec Regional Medical Center, located in Richland, is a regional medical center with 270 beds. Classified as a Level III Adult Trauma Center, the center offers 24-hour emergency room services seven days a week. The Richland hospital is a not-for-profit, private corporation governed by local volunteer trustees.

Benton County is also served by public and private medical clinics that provide treatment for most medical issues. In neighboring Franklin County, Lourdes Medical Center is a critical access hospital with 35 beds. Classified as a Level IV Adult Trauma Center, Lourdes Medical Center offers 24-hour emergency room services seven days a week.

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3.14 Transportation

This section describes the traffic and transportation systems in the study area of the proposed Horse Heaven Wind Farm (Project, or Proposed Action). The study area for the transportation analysis includes roadway intersections, railroad mainlines, and marine terminal facilities in the vicinity of the Project, which is defined as approximately 4 miles south/southwest of the city of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. Conditions of transportation systems beyond the Washington border, including the conditions of Interstate 84, are not included in this assessment. Section 4.14 assesses impacts of the Project or No Action Alternative on transportation systems.

Regulatory Setting

Washington Administrative Code 463-60-372 sections (1) through (6) require that an applicant provide information for site certification pertaining to:

- Transportation systems
- Vehicular traffic
- Waterborne, rail, and air traffic
- Parking
- Movement/circulation of people or goods
- Traffic hazards

3.14.1 Affected Environment

Washington is an economic gateway state, connecting Asian markets to U.S. industries, Alaska to the continental United States, and Canada to the U.S. West Coast. Imports to Washington support U.S. manufacturers and provide goods to consumers, while agricultural exports support family farms throughout the Pacific Northwest and Midwest. Goods coming into Washington by container ship often go to the Midwest and East Coast.

Regional economies in Washington—and their manufacturing, agriculture, construction, and forestry components—depend on an effective and efficient freight transportation system. Businesses in Washington rely on the freight system to ship their products to local customers in the state, U.S. markets in California and on the East Coast, and worldwide. Freight-dependent industries provide 46 percent of all jobs in Washington (WSDOT 2017). These jobs occur in the most heavily freight-dependent industry sectors such as wholesale and retail, manufacturing, construction, agriculture, and transportation. These sectors rely on the multimodal freight network to conduct day-to-day business.

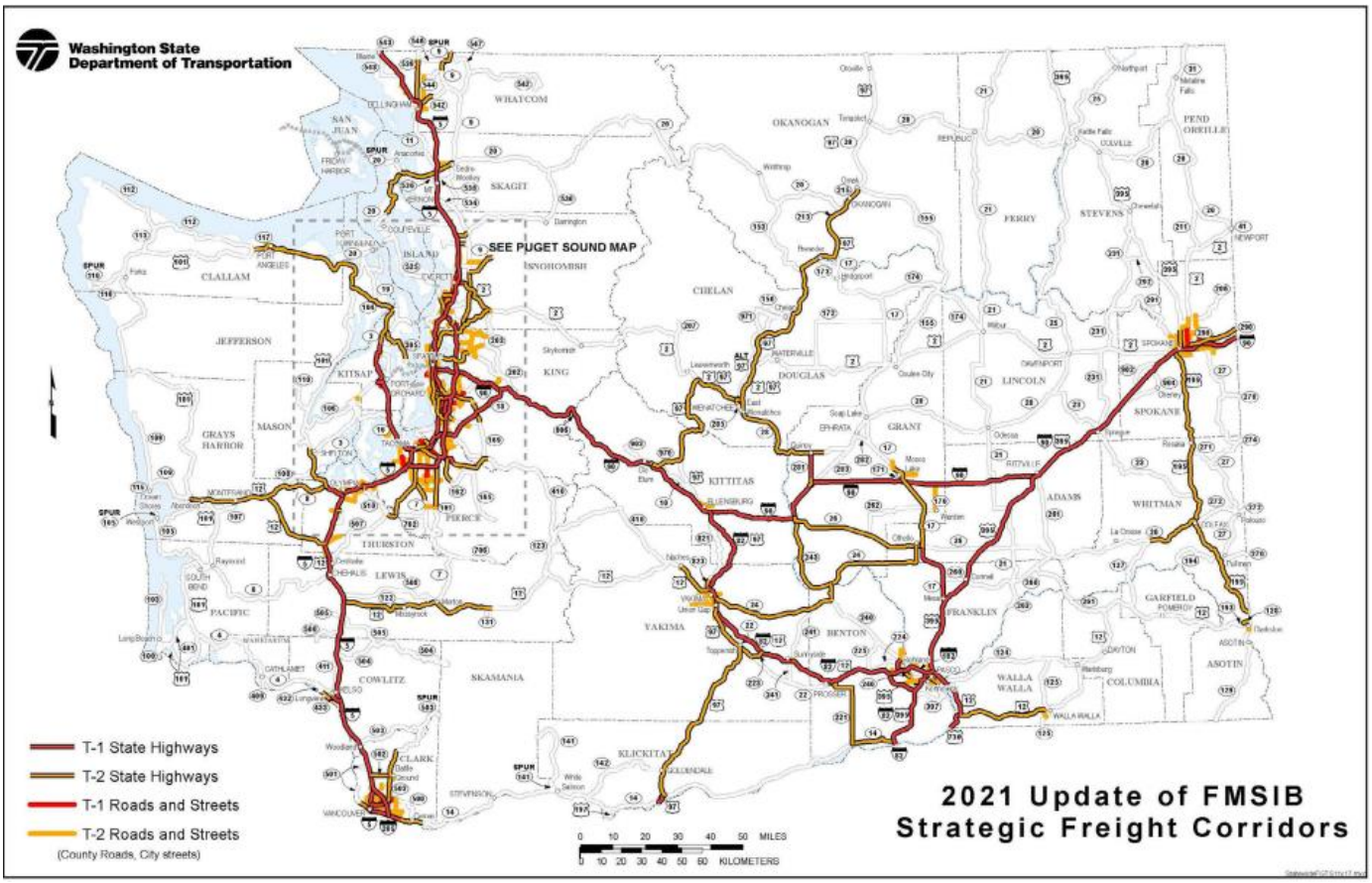
The 2021 Freight and Goods Transportation System (FGTS) classifies freight corridors by modes in Washington State based on annual freight tonnage moved, including truck, rail, and waterway freight corridors (WSDOT 2021a). Each modal network is classified into five tiers, and the specific annual tonnage thresholds for freight moved are described below:

- FGTS truck corridors are categorized as follows:
  - T-1 corridors: more than 10 million tons
  - T-2 corridors: 4 million to 10 million tons

  - T-3 corridors: 300,000 to 4 million tons
  - T-4 corridors: 100,000 to 300,000 tons
  - T-5 corridors: at least 20,000 tons in 60 days and less than 100,000 tons per year

Both T-1 and T-2 corridors are shown in **Figure 3.14-1**.

- FGTS rail corridors are categorized as follows:
  - R-1 corridors: more than 5 million tons
  - R-2 corridors: 1 million to 5 million tons
  - R-3 corridors: 500,000 to 1 million tons
  - R-4 corridors: 100,000 to 500,000 tons
  - R-5 corridors: less than 100,000 tons
- FGTS waterway corridors are categorized as follows:
  - W-1 corridors: more than 25 million tons
  - W-2 corridors: 10 million to 25 million tons
  - W-3 corridors: 5 million to 10 million tons
  - W-4 corridors: 2.5 million to 5 million tons
  - W-5 corridors: 0.9 million to 2.5 million tons



Source: WSDOT 2021b

Figure 3.14-1: Statewide Map of 2021 T-1 and T-2 Truck Freight Corridors

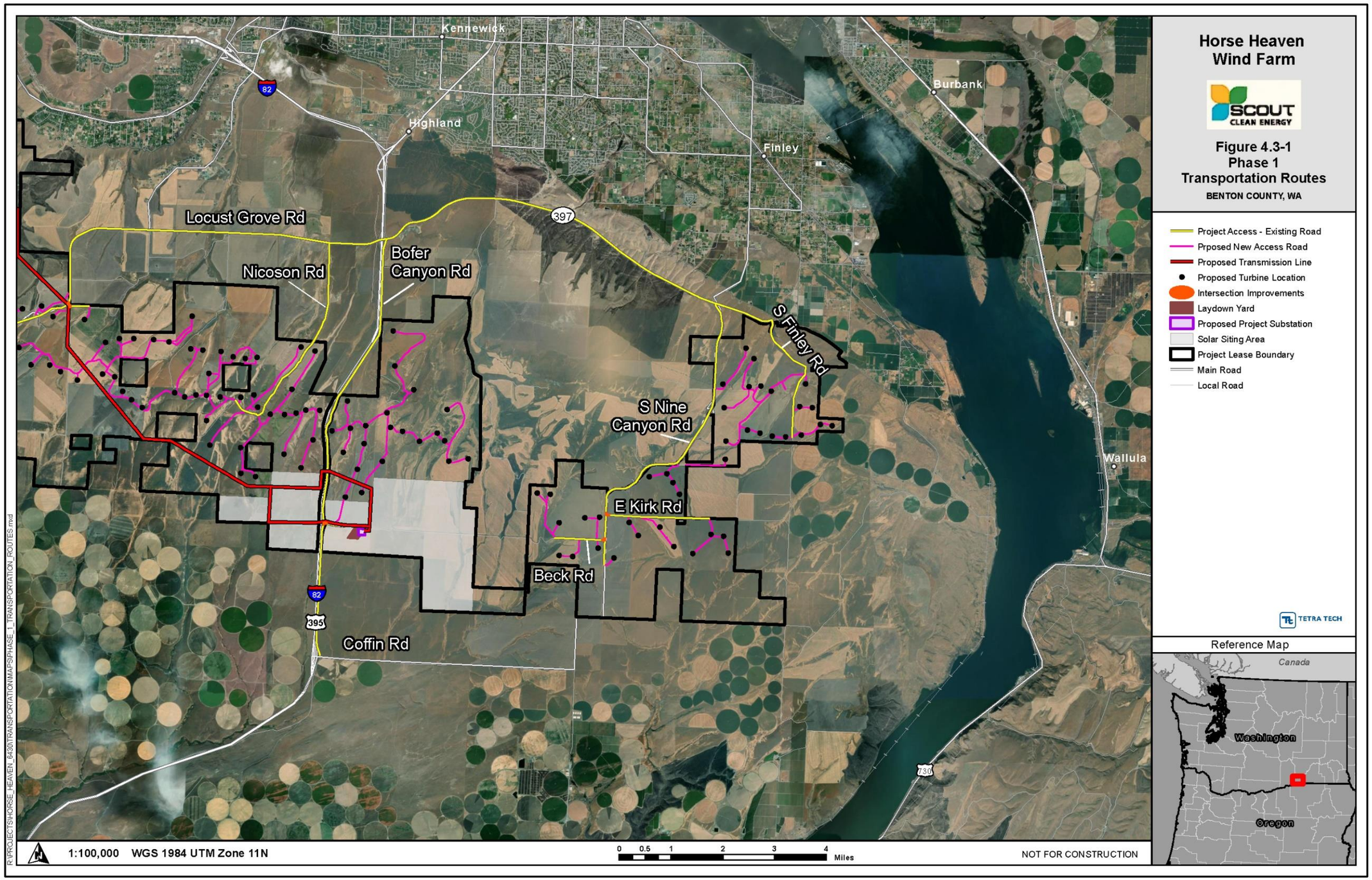
The Project would occupy two non-contiguous areas making up the Project's Lease Boundary, bisected by Interstate 82 (I-82), a T-1 Corridor. Each area would utilize a different set of local roads and constructed access roads for interior access; however, both areas would be served by I-82 as the primary inbound route for materials. All equipment is anticipated to be delivered from the south to the Project location during construction and decommissioning. From I-82, State Route 397—a T-3 Corridor—and county two-lane roads would be used to access the eastern portion of the Lease Boundary. The western portion of the Lease Boundary would be accessed from the south entering from Oregon along I-82, to State Route 221 – a T-2 corridor – and county roads. Impacts of transporting oversize and overweight loads were not evaluated along State Route 221, and therefore State Route 221 would not be considered for oversize and overweight transport during construction of the Project.

Workers would arrive from multiple locations during construction, operation, and decommissioning. The Proposed Action in the context of Horse Heaven Wind Farm, LLC's (the Applicant's) example in the 2022 Application for Site Certification (ASC) is a phased approach to construction, described as follows:

- Phase 1 construction could generate power via wind and solar. Phase 1 could also include a battery energy storage system (BESS) capable of storing energy.

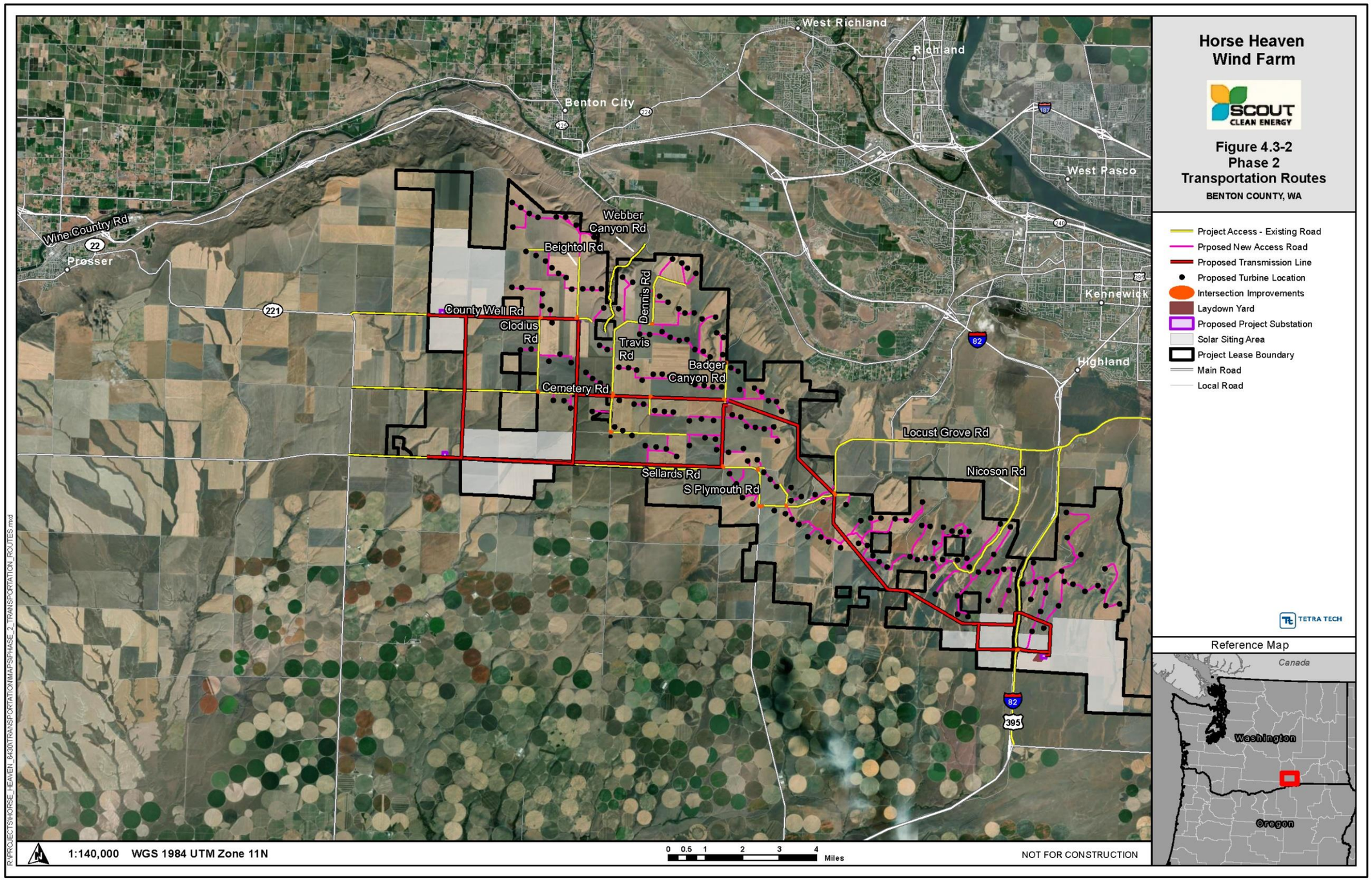
- Phase 2 construction is divided into Phase 2a and Phase 2b, summarized as follows:
  - Phase 2a could consist of the construction of both wind and solar facilities. The Applicant's Phase 2a scenario also includes the construction of a BESS.
  - Phase 2b could increase power generation via the construction of additional wind turbines, but construction would not include a BESS.

Possible transportation routes for the Project during construction are shown in **Figure 3.14-2** for Phase 1 and **Figure 3.14-3** for Phase 2.



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.14-2: Transportation Routes for Phase 1



Source: Horse Heaven Wind Farm, LLC 2022

Figure 3.14-3: Transportation Routes for Phase 2

The Project vicinity is utilized for agricultural activities. Most of the roads that would be utilized by the Project primarily serve local rural residents and the transport of agricultural produce. The agriculture and food-manufacturing sector is a cornerstone of Washington's economy in both rural communities and metropolitan areas. The top four agricultural supply chains in Washington are apples, dairy, wheat, and potatoes, with all supply chains relying on corridors within the study area (WSDOT 2017).

3.14.1.1 Local Infrastructure

The Washington State Department of Transportation (WSDOT) is charged with planning, funding, implementing, constructing, and maintaining the multimodal transportation system in the state. WSDOT is responsible for managing and directing the state's freight and passenger rail capital and operating programs.

WSDOT establishes level of service (LOS) standards for state highways and ferry routes of statewide significance based on Revised Code of Washington (RCW) 47.06.140(2). LOS is a qualitative measure that predicts the quality of experience by motorists using the infrastructure. An LOS analysis evaluates the potential change to the LOS rating of roadways and intersections anticipated to be impacted by Project development. The LOS analysis provides a standardized means of categorizing efficiency and experiential quality by assigning a letter grade to it. LOS ratings range from A to F, with A representing the best conditions and F representing unacceptably high congestion and delays, as shown in **Table 3.14-1**. Regional transportation planning organizations and WSDOT jointly develop and establish LOS standards for regionally significant state highways and ferry routes based on RCW 47.80.030(1)(c).

Table 3.14-1: Definition of Level of Service Ratings for Roadways

LOS	Description[(a)]	Signalized Intersection	Unsignalized Intersection	Highway/ Freeway	Volume-to-Capacity Ratio
		Delay (s/veh)		Density (pcpmpl)	
A	Free-flow	0–10	0–10	0–11	0.00–0.60
B	Reasonably free-flow	10–20	10–15	11–18	0.61–0.70
C	Stable flow	20–35	15–25	18–26	0.71–0.80
D	Approaching unstable flow	35–55	25–35	26–35	0.81–0.90
E	Unstable flow	55–80	35–50	35–45	0.91–1.00
F	Forced or breakdown flow	> 80	> 50	> 45	> 1.00

Source: Horse Heaven Wind Farm, LLC 2022
Notes:
[(a)] Descriptions provided by the summary of data in WSDOT (2021c)
> = greater than; LOS = Level of Service; pcpmpl = passenger cars per mile per lane; s/veh = seconds per vehicle

Procedures based on the Transportation Research Board Highway Capacity Manual guidelines were used to complete an LOS analysis for roads impacted by Project development (TRB 2016). The LOS performance measure of an intersection is based on the delay that an average vehicle will experience after approaching the intersection. Unsignalized intersections include two-way and all-way stop-controlled intersections and roundabouts. Signalized intersections are those that have traffic signals/traffic lights. The LOS for highways and freeways is based on the density of the road in passenger cars per mile per lane. Roadways that are not highways/freeways are only analyzed at their intersections, as the intersections on those roads are the conflicting

zones where delay occurs. Grade-separated interchanges are analyzed as two independent unsignalized/ signalized intersections where the two exit ramps meet the cross street.

The State of Washington's Growth Management Act (RCW 36.70A.070) requires that cities and counties include a transportation element in their comprehensive plans. The transportation element of the Benton County Comprehensive Plan describes the existing transportation network, LOS, planned improvements and financing, and intergovernmental coordination needs, as required under RCW 36.70A.070(6), which helps integrate the transportation planning with land use (Benton County 2022).

After adoption of the comprehensive plan, local jurisdictions must adopt and enforce ordinances that prohibit development approval if the development causes the LOS on a locally owned transportation facility to decline below the standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrently with the development. These strategies may include increased public transportation service, ride-sharing programs, demand management, and other transportation systems management strategies.

Benton County participates in the Benton-Franklin Regional Transportation Planning Organization and the Tri-Cities Metropolitan Planning Organization. RCW 36.81.121 requires the development of a perpetual, advanced, six-year transportation improvement program (TIP) for coordinated transportation that describes the road maintenance and improvement program. The 2022–2027 six-year TIP was approved on August 10, 2021 (Benton County 2021). Transportation and roadway projects are identified to meet stated performance measures addressing safety, pavement, and bridges, as well as system performance, freight, and congestion mitigation. The planning area covered by these efforts includes the entirety of Benton County, including the study area for the Project.

Twenty road segments, identified in the Benton County 2022-2027 Six-Year Transportation Improvement Plan, are identified for potential improvement ranging from guardrail improvement to paving and intersection improvements (Benton County 2021; Horse Heaven Wind Farm, LLC 2022).

Traffic data were collected at 29 intersections throughout the study area. To capture the weekday morning and evening peak hours, turning movement counts were collected from 5:00 a.m. to 8:00 a.m. and from 4:00 p.m. to 7:00 p.m. on June 13, 2023. In addition to turning movement counts, eight 24-hour bidirectional automated traffic recorders collected data on key roadway segments throughout the study area. These automated traffic recorders collected vehicle speeds, volumes, and classification. All calculations were performed using Synchro 11 and Highway Capacity Software 2022 (Horse Heaven Wind Farm, LLC 2023).

All utilized roads and available traffic count data and jurisdictions are summarized in **Table 3.14-2**. The table also summarizes the physical characteristics and conditions for the local infrastructure. The conditional assessment is a qualitative judgment utilizing 2018 aerial imagery and does not represent a detailed characterization of quality based on in-person inspections of pavement or quantitative metrics such as asphalt/gravel depth, age, or design life.

Table 3.14-2: Utilized Highway and County Roads

Access Road	Jurisdiction	Width (feet)[a]	LOS Standard[b]/ Speed Limit	Number of Lanes[c]	Weekday AM/PM Peak Hour	Weekday Daily	2021 FGTS Class[d]	Condition/Notes[e]
I-82 – North of Coffin Road[f]	FHWA/WSDOT	36/side	C/70 mph	4	1,292/2,193	24,995	T-1	Fair; minor cracking especially on the shoulders; road may have been resurfaced because most cracking does not continue into road.
Coffin Road – East of Bofer Canyon Road[h]	Benton County	30	No data	2	35/21	210	No data	Fair; some minor cracking visible.
Bofer Canyon Road – North of Coffin Road[g]	Benton County	32	No data	2	1/5	39	No data	Good; no cracking or wear visible, appears to have been redone between 2013 and 2015.
Nine Canyon Road – South of Route 397[g]	Benton County	28	No data	2	19/24	253	T-4	Good; appears to have been paved between 2013 and 2015.
Beck Road – East of Bofer Canyon Road[h]	Benton County	20	No data	1.5	8/7	70	T-5	Poor; evidence of rutting all along gravel road.
Kirk Road – East of S. Nine Canyon Road[h]	Benton County	18	No data	1.5	1/2	20	No data	Good; rutting was repaired in 2016, gravel surface appears smooth.
State Route 397 – West of Nine Canyon Road[g]	WSDOT	36	D/60 mph	2	90/105	1,366	T-3	Poor; plentiful filled cracks along the entire road.
S. Finley Road[h]	Benton County	24	No data	2	11/30	300	T-4	Good; appears to be repaved between 2015 and 2016.
State Route 221 – South of Sellards Road[f]	WSDOT	32	C/65 mph	2	212/285	2,657	T-2	Good; no visible wear or cracking.
Webber Canyon Road – South of Badger Road[h]	Benton County	32	C/25 mph	2	77/121	1,210	T-3	Good; provides connectivity to Benton City and appears well maintained.
Travis Road - North of Sellards Road[g]	Benton County	28	C/50 mph	2	48/75	737	T-3	Good; a continuation of Webber Canyon Road.
Locust Grove Road – between Nicosin Road and I-82[g]	Benton County	32	No data	2	48/61	591	T-3	Good; no obvious signs of wear and condition appears unchanged through the available imagery.

Table 3.14-2: Utilized Highway and County Roads

Access Road	Jurisdiction	Width (feet)[a]	LOS Standard[b]/ Speed Limit	Number of Lanes[c]	Weekday AM/PM Peak Hour	Weekday Daily	2021 FGTS Class[d]	Condition/Notes[e]
Nicoson Road[i]	Benton County	20	No data	2	No data	No data	No data	The first 4,600 feet is good condition paved, then it transitions to gravel/two-track road that is very narrow and may be a private road.
S. Plymouth Road – North of State Route 14[g]	Benton County	32	C/50 mph	2	73/115	1,352	T-3	Good; some very occasional minor cracking/wear.
Sellards Road – between State Route 221 and Tyack Road[g]	Benton County	32	C/50 mph	2	68/96	1,048	T-3	Good; is a continuation of S. Plymouth Road.
Badger Canyon Road – North of Sellards Road[g]	Benton County	18	No data	1.5	3/9	68	No data	Good; no visible rutting or washout.
Cemetery Road – West of State Route 221[h]	Benton County	18	No data	1.5	0/1	10	No data	Fair; some evidence of worn tracks, though no apparent ruts.
Clodius Road[i]	Benton County	16	No data	1.5	No data	No data	No data	Fair; narrow and worn looking, but no obvious ruts.
County Well Road – East of State Route 221[h]	Benton County	20	No data	2	2/19	190	T-3	Good; probably very light use with no visible change in conditions throughout available imagery.
Beightol Road[i]	Benton County	16	No data	1.5	No data	No data	No data	Fair; narrow and worn looking.
Dennis Road[i]	Benton County	16	No data	1.5	No data	No data	No data	Fair; some washboarding visible.

Source: Unless otherwise noted, Horse Heaven Wind Farm, LLC 2023 Tables 4.3-1 and 4.3-2

Notes:

(a) Width measured from aerial imagery is approximate edge of shoulder to edge of shoulder. For paved road only; the paved shoulder is included though most have additional gravel.

(b) LOS for state routes (including I-82, SR-307, and SR-221) is the existing standard set by WSDOT. This is the lowest acceptable rating for that road.

(c) The number of lanes is the total number of lanes counting both directions: 1.5 lanes indicates a road that is gravel as gravel roads do not have lane markings and usually have less width than a typical two-lane paved road.

(d) WSDOT 2021a

(e) The conditional assessment is a qualitative judgment utilizing 2018 aerial imagery and does not represent a detailed characterization of quality based on in-person inspections of pavement or quantitative metrics such as asphalt/gravel depth, age, or design life Information will be verified by a third-party engineer during the required traffic analysis described in Section 4.14.2.4.

(f) 2023 AADT data for I-82 – North of Coffin Road and State Route 221 – South of Sellards Road, were collected from the closest permanent traffic recorder maintained by WSDOT.

(g) 2023 ADT data for Benton County roads was collected in June 2023.

(h) Weekday Afternoon Peak Hour Traffic Volumes at these locations were multiplied by a factor 10 to calculate an estimated ADT.

(i) No data collected at these locations.

AADT = average annual daily traffic; ADT = average daily traffic; FGTS = Freight and Goods Transportation System; FHWA = Federal Highway Administration; HCM = Highway Capacity Manual; I-82 = Interstate 82; LOS = level of service; mph = miles per hour; SR = State Route; WSDOT = Washington State Department of Transportation

The existing LOS summaries presented in the Final ASC for roadway segments and unsignalized intersections serve as a baseline to assess the significance and severity of Project impacts. According to the Final ASC, existing traffic conditions are considered good (Horse Heaven Wind Farm, LLC 2023). The intersections are below their capacities, and traffic flows freely throughout the Project vicinity.

3.14.1.2 Waterborne, Rail, and Air Traffic

Waterborne Traffic

A total of 812 miles of waterways are identified as FGTS corridors. Of those, 751 miles were classified as W-1 (more than 25 million tons) through W-4 (2.5 million to 5 million tons) corridors and designated by the Washington State Freight Mobility Strategic Investment Board as part of the Strategic Freight Corridors. Waterways and ports are shown in **Figure 3.14-4**. Washington has the largest locally controlled port system in the world (Washington Ports n.d.). Public ports in Washington were authorized under the Port District Act of 1911. Each of Washington's 75 ports was formed by a vote of the residents and governed by publicly elected, local officials. Washington Port districts are unique, special-purpose districts with the primary mission of promoting economic development. Ports can build and operate commercial and general aviation airports, marine terminals, marinas, railroads, and industrial parks.

Source: WSDOT 2021a, with edits showing Port of Longview and Port of Benton

Figure 3.14-4: Waterway Freight Corridors

The Port of Benton, Port of Kennewick, and Port of Pasco on the Columbia River serve the area by water.

- The Port of Benton was established in 1958 and grew to encompass the existing port facilities following the transfer of ownership of Richland from the U.S. Army Corps of Engineers to the citizens in 1959. Previously, Richland had been the property of the federal government as part of a World War II secret mission called the Manhattan Project. The Port of Benton was designated as a Nuclear Port in 1965 by the U.S. Coast Guard and is one of only a handful of ports in the nation authorized to handle radioactive materials (Port of Benton n.d.).
- The Port of Kennewick provides mixed-use amenities and operates the Clover Island Marina for the launching and/or moorage of boats in Kennewick's Historic Waterfront District (Port of Kennewick 2022).
- The Port of Pasco is considered the largest public marine terminal on the upper Columbia River. The Port of Pasco was originally formed to provide facilities for barge shipments of grain from the area on the Columbia River to the seacoast terminals. The Port of Pasco has a 600-acre industrial center with several miles of

railroad tracks and streets and over 1.7 million square feet of buildings. The Port of Pasco also took over the former World War II U.S. Navy facility, known as the Pasco Airport, and renamed it the Tri-Cities Airport (Port of Pasco 2022).

The Port of Longview, Port of Kalama, and Port of Vancouver are the closest seaports to the Lease Boundary.

- The Port of Longview offers bulk cargo handling and has eight marine terminals and waterfront industrial property spanning 835 acres on the Columbia River, 66 miles from the Pacific Ocean in southwest Washington State (Port of Longview n.d.). Cargo handling at the Port of Longview includes all types of bulk cargo and breakbulk commodities such as fertilizers, grain, heavy-lift cargo, logs, lumber, minerals, paper, pulp, steel, and wind energy components (Port of Longview n.d.).
- The Port of Kalama sits on the Columbia River immediately west of Interstate 5. The Port of Kalama is a marine terminal port that offers "6 miles of riverfront property adjacent to the federally maintained deep draft navigation[27] channel of the Columbia River" and is served by the Burlington Northern/Santa Fe and Union Pacific railroads (Port of Kalama 2022).
- The Port of Vancouver connects Asia and South America to the U.S. midcontinent and Canada and handles more than 7 million tons of cargo each year, including wheat, mineral and liquid bulks, vehicles, and other project cargo (Port of Vancouver USA 2023).

Rail Traffic

Rail is an integral part of Washington's statewide transportation system. Railroads carry a variety of products, including agricultural products, energy products, forest products, chemicals, containerized goods, finished automobiles, and waste products (WSDOT 2020).

Several freight stations are within the Project's study area, including (USDOT n.d.):

- Hedges (Freight Station Accounting Code [FSAC] 07427)
- Kennewick (FSAC 07430 and FSAC 13004)
- Hover (FSAC 12147)
- Finley (FSAC 12151)
- Cushman (FSAC 12153)
- Yellepit (FSAC 12159)
- Plymouth (FSAC 12183)
- Vista (FSAC 13007)
- Badger (FSAC 13017)
- Kiona (FSAC 13024)
- Gibbon (FSAC 13034)
- Prosser (FSAC 13040)
- Whitstran (FSAC 5003)

[27] Deep draft means a channel depth greater than 15 feet (USACE n.d.)

Source: WSDOT 2021a

Figure 3.14-5: Rail Freight Corridors in Washington State

Planning and investment in the state's rail system is guided by WSDOT's vision for a safe, sustainable, and integrated multimodal transportation system. The State Rail Plan is consistent with the Transportation System Policy Goals adopted by the state legislature and with statewide and metropolitan planning. Burlington Northern Santa Fe (BNSF), Union Pacific Railroad, and Tri-City and Olympia Railroad Company provide commercial rail service to the area. Amtrak provides passenger rail service to the area. Freight and passenger services share much of the same infrastructure and operate as an integrated rail system (WSDOT 2020). WSDOT sponsors Amtrak Cascades intercity passenger rail service in conjunction with the Oregon Department of Transportation.

The LOS grades and descriptions for rail correspond generally to the LOS grades used in the Federal Highway Administration's Highway Performance Monitoring System. The capacity analysis results are expressed as LOS grades by comparing combined freight and passenger train volume to the practical capacities of each segment. The volume/capacity ratios and the corresponding LOS grades are listed in **Table 3.14-3**.

Table 3.14-3: Definition of Level of Service Grades for Rail

LOS Grade	WSDOT Definition	Volume/Capacity Ratio
A	Below Capacity - Low to moderate train flows with capacity to accommodate maintenance and recover from incidents	0.0 to 0.2
B	Below Capacity - Low to moderate train flows with capacity to accommodate maintenance and recover from incidents	0.2 to 0.4
C	Below Capacity - Low to moderate train flows with capacity to accommodate maintenance and recover from incidents	0.4 to 0.7
D	Near Capacity - Heavy train flow with moderate capacity to accommodate maintenance and recover from incidents	0.7 to 0.8
E	At Capacity - Very heavy train flow with limited capacity to accommodate maintenance and recover from incidents	0.8 to 1.0
F	Above Capacity - Unstable flows; service breakdown conditions	>1.00

Source: WSDOT 2020
LOS = level of service; WSDOT = Washington State Department of Transportation

Three future scenarios were evaluated by WSDOT for system capacity analysis in 2019:

- Low growth scenario: combines the low growth scenario established for freight rail volume forecast, and for Cascades rail ridership forecast
- Moderate growth scenario: combines the corresponding moderate scenarios established for freight rail volume forecast and for Cascades passenger rail ridership forecast
- High growth scenario: combines the corresponding high growth scenarios established for freight rail volume forecast and for Cascades passenger rail ridership forecast

These three scenarios included existing long-distance and commuter services for capacity analysis but did not account for additional Amtrak long-distance trains or Sounder commuter rail trains.

The results of the LOS analysis are summarized in **Table 3.14-4**.

Table 3.14-4: Rail Level of Service Estimation for Base and Forecast Year Scenarios

Name of Corridor	2019 State Rail Plan Update LOS[(a)]			
	2016 Base Year	2040 Low Growth	2040 Moderate Growth	2040 High Growth
Auburn-Pasco	B	A	B	B
Everett-Vancouver, B.C., Canada	C	C	E	F
Hinkle, OR-Lakeside	C	B	E	F
Pasco-Lakeside	C	C	E	F
Vancouver-Pasco	E	D	F	F
Seattle-Tacoma (BNSF)	C	C	D	E
Seattle-Tacoma (UP)	A	A	B	B
Tacoma-Vancouver (BNSF/UP Shared Use Segment)	C	C	E	F
Seattle-Everett	C	C	E	F
Everett-Spokane	C	C	F	F
Lakeside-Spokane (BNSF/UP Shared Use Segment)	E	D	F	F
Spokane-Sandpoint, ID (BNSF)	C	C	F	F
Spokane-Sandpoint, ID (UP)	C	B	E	F
Portland, OR-Vancouver (BNSF/UP Shared Use Segment)	B	C	C	E
Fallbridge-Chemult, OR	A	A	A	A

Source: WSDOT 2020
Notes:
(a) LOS grades for rail are defined in **Table 3.14-3**.
B.C. = British Columbia; BNSF = Burlington Northern-Santa Fe; ID = Idaho; LOS = level of service; OR = Oregon; UP = Union Pacific

This analysis provides an indication of current and future demands for capacity and resulting congestion, absent any operational change and investments to increase capacity. The capacity analysis results identified multiple segments where capacity would be insufficient to handle Project-related traffic without changes.

Air Traffic

The Tri-Cities Airport and the smaller airports, Port of Benton Airport and Richland Airport, serve the area surrounding the Lease Boundary. The Tri-Cities Airport, which is associated with the Port of Pasco, is the largest airport in the southeastern Washington/northeastern Oregon region, with connections to 11 major hubs (Port of Pasco 2022). Both the Port of Benton Airport and the Richland Airport were acquired by the Port of Benton in 1961. The Port of Benton Airport, formerly the Prosser Airport or the George O. Beardsley Field, was transferred by the City of Prosser to the Port of Benton, and the federal government transferred the Richland Airport, formerly the Atomic Energy Field, to the Port of Benton (Port of Benton n.d.).

3.14.1.3 Parking

The Project Lease Boundary is located in rural agricultural land with no major existing public parking facilities. Parking along roads within the Lease Boundary occurs for two recreational opportunities—the Horse Heaven Hill Cemetery and Johnson Butte.

3.14.1.4 Movement/Circulation of People or Goods

State and interstate highways are designed and constructed to handle legal loads of 105,500 pounds (gross weight). Some trucks that deliver large and heavy equipment (typically the base, lower middle, and top tower sections, nacelles, drive train, and hub) would be required to obtain oversize/overweight permits. These permits allow travel on all unrestricted roads. I-82 and State Route 397 are constructed to standards that will safely allow legally oversized/overweight trucks to pass with no adverse impact on the road surface. None of the state roads currently have size or weight restrictions. The condition of the existing Benton County roads that would be used by the Project varies from improved gravel two-lane roads to two-track roads with minimal aggregate surfacing.

3.14.1.5 Traffic Hazards

Existing traffic hazards consist of current truck transport (including hazardous materials, such as fuel), agricultural equipment, and vehicle accidents. Approximately 66 collisions that resulted in an injury occurred from January 1, 2020, through January 31, 2021 in the study area, including several that occurred within the Lease Boundary (County of Benton n.d.). Three fatalities were reported in the study area in 2021 (County of Benton n.d.). Work zone traffic control, or maintenance of traffic, can be used to decrease fatalities related to the transportation of oversized materials for the construction of projects.

The primary function of work zone traffic control is to allow all modes of traffic, including motor vehicles, bicyclists, and pedestrians, to move safely and easily through or around work areas while still allowing safe and efficient work operations to be conducted. Effective temporary traffic control enhances traffic safety and efficiency. The Federal Highway Administration's Manual on Uniform Traffic Control Devices is adopted by WSDOT as the legal standard. Traffic Control Plans are used for projects to communicate work duration, personal protective wear requirements, traffic control devices and equipment, required flagging, and other special considerations, including other roadway users or traffic concerns such as school zones and/or rail crossings.

Speed zones (limits) are established based on the concept of reasonable speed. Roads with no posted speed are subject to the Basic Speed Rule. Under Washington State law, the maximum speed limit in urban areas is 50 miles per hour (mph). All other speed limits are called "prima facie limits," which are considered by law to be safe and prudent under normal conditions. Certain prima facie limits are established by state law and include 25 mph in business and residential districts and 20 mph in school zones.

The following schools and school zones are located in the study area:

- Cottonwood Elementary near East Badger Road
- Prosser Heights Elementary near State Route 22
- Housel Middle School near State Route 22
- Prosser High School near State Route 22
- Keene Riverview Elementary near State Route 22

School zones are areas near marked crosswalks installed adjacent to school grounds. Washington State Law RCW 46.61.440, in regard to driving speed in a designated school zone, specifies "Speed 20 miles per hour when children are present." This reduced speed is in effect 24 hours per day, not just during crossing hours. In some cases, the school crossing area may have speed beacons (flashers). At these crossings, the 20 mph school zone is in effect any time these beacons are flashing (Kennewick Washington n.d.).

Rail Safety

The Washington Utilities and Transportation Commission (UTC) is the state agency responsible for regulating railroad safety in Washington. The UTC's Rail Safety program protects the public and railroad employees by ensuring that railroad companies meet established state and federal safety standards and by educating the public about the dangers of traveling on or near railroad tracks.

The UTC inspects railroad crossings in the state every three years and railroad crossings located on crude oil routes every 18 months, monitors railroad grade crossing inventory information, and documents trespassing and incident data.

The UTC, through Title 49, Code of Federal Regulations Part 212, is the designated state agency that partners with the Federal Railroad Administration (FRA) to inspect rail shipments of hazardous materials. There are more than 300 inspection points throughout the state, including shippers' facilities, railroad yards, and terminals. In addition to these hazardous materials inspections, the UTC's FRA-certified inspectors perform inspections on signal and train control equipment, track, motive power and equipment, railroad operating practices, and grade crossings.

In addition, the UTC has regulatory authority over safety at public highway-rail grade crossings. The UTC monitors all accidents and incidents at public and private crossings, including investigating fatalities and injuries. Private crossings are those that cross the tracks into residential driveways or service roads, or on industrial properties and along railroad rights-of-way.

The UTC funds projects to improve public safety at crossings and to limit pedestrian access to railroad rights-of-way through the Grade Crossing Protection Fund. The UTC also partners with Operation Lifesaver, Inc., and coordinates activities with Washington Operation Lifesaver, a public service education program dedicated to preventing collisions, injuries, and fatalities on and around railroad tracks and highway-rail grade crossings.

The UTC recorded 33 accidents and incidents at Washington State grade crossings in 2021. One of these occurred in Benton County (UTC 2022).

Crossings that are in the vicinity of the Project and could intersect the assumed transport routes of materials for the Project include:

- Crossing 927487A, where train tracks cross over Webber Canyon Road
- Crossing 928191E, where train tracks cross under I-82 near West Clearwater Avenue
- Crossing 928192L. where train tracks cross Dallas Road at grade
- Crossing 966466M, where train tracks cross under eastbound I-82 near the Lewis and Clark Trail Highway
- Crossing 966467U, where train tracks cross under westbound I-82 near the Lewis and Clark Trail Highway

All crossings except Crossing 928192L are located above (via an overpass) or under (via an underpass) the transport route. Crossing 928192L, where train tracks cross Dallas Road is a grade crossing, meaning that the crossing occurs at the same grade as other traffic. Two BNSF trains use this crossing each 24-hour period, at a maximum speed of 40 miles per hour. UTC has recorded two accidents at this crossing, one occurring in 1992 and the other in 2008. In both cases, the vehicle driver did not heed the warning signals at the crossing. Neither accident resulted in an injury or fatality. The crossing is equipped with automatic crossing signals and gates,

which means when a train is approaching, the gates go down to block access to the track until the train passes through. To circumvent the gates, a driver must be fully aware of the downed gates and consciously choose to drive around the gates and over the tracks.

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3.15 Public Services and Utilities

This section describes the public services and utilities and the regulatory setting in the proposed Horse Heaven Wind Farm (Project, or Proposed Action) and Project vicinity. Public services such as law enforcement, fire protection, emergency management services, and hospitals are discussed in Section 3.13, Public Health and Safety. Similarly, schools are discussed as part of Section 3.16, Socioeconomics. The Project vicinity includes the areas 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. A public utility is an organization that maintains the infrastructure for a public service. A reduction in the reliability of a public utility service affects all areas of daily life. Section 4.15 discusses the Project's anticipated impact on the availability of public services and utilities within Benton County and surrounding communities.

Utilities, as described in the Benton County Comprehensive Plan, include the following:

- Supply, treatment, and distribution of domestic and irrigation water
- Collection and treatment of sewage
- Collection and conveyance of stormwater
- Supply and distribution of natural gas
- Supply and distribution of electricity
- Telecommunications, including broadband internet services, cable television (TV), and microwave transmissions
- Collection and disposal of solid waste
- Construction, operation, and maintenance of streets (Benton County 2022)

Sections 3.4 and 4.4, Water Resources, analyze the collection and conveyance of stormwater within the Lease Boundary and Project vicinity. Sections 3.7 and 4.7, Energy and Natural Resources, evaluate the supply and demand for electricity and water within the Project vicinity, Benton County, and the State of Washington. Sections 3.14 and 4.14, Transportation, evaluate the Project's impact on streets and highways.

Regulatory Setting

Washington Administrative Code (WAC) 463-60-535(4) requires a review of a proposed facility's impact on utilities. The primary regulatory agency for most utilities in the State of Washington is the Washington Utilities and Transportation Commission (UTC). The UTC ensures that safe and reliable service is provided to customers at reasonable rates. The State of Washington's Growth Management Act (Revised Code of Washington [RCW] 36.70A.070) requires that cities and counties include a utilities element in their comprehensive plans that describes the general location, proposed location, and capacity of all existing and proposed utilities, including, but not limited to, electrical lines, telecommunication lines, and natural gas lines. The relevant goals and policies of the Benton County Comprehensive Plan's utilities element (UE) include the following:

- UE Goal 1: Ensure utilities support the land use and economic development goals of the County.
- UE Goal 2: Maintain public and private household water and sewer systems that are consistent with the rural character of the County.

- UE Goal 3: Facilitate efficiency in utility land use and development.
  - Policy 2: Encourage multiple uses, including passive recreational use, in utility corridors where practical.
  - Policy 3: Facilitate maintenance and rehabilitation of existing utility systems and facilities and encourage the use of existing transmission/distribution corridors.
- UE Goal 4: Develop and adopt provisions as necessary that support future demand for alternative energy vehicles.
  - Policy 1: Permit electric vehicle charging stations equipped with slow and medium speed charging equipment as an accessory or ancillary use to any principal use in all zoning districts.
  - Policy 2: Allow electric vehicle “rapid charging stations” designation in commercial, industrial, and agricultural zones as regulated in the zoning code and exclude in areas identified as critical resource areas (Benton County 2022).
- All water systems within the State of Washington are regulated by the Washington State Department of Health, Office of Drinking Water.
  - A domestic use is a water supply used for domestic purposes, as defined by WAC 173-518-030.
  - Typically, a domestic water supply comes from a well that is exempt from permitting under RCW 90.44.050 and the Washington State Department of Health’s public water system requirements.
- Irrigation districts in the State of Washington are created under RCW 87.03.
- The State of Washington, in accordance with WAC 246-272A, requires that all wastewater receive treatment to protect human health and aquatic life.
- For large on-site sewage systems with design flows above 3,500 gallons per day, WAC 246-272B requires the operator to obtain approval from the Washington State Department of Health.
- Solid waste landfills in the State of Washington are regulated by local health departments and the Washington State Department of Ecology through the Criteria for Municipal Solid Waste Landfills WAC Chapter 173-351.

3.15.1 Affected Environment

Benton County is predominantly rural and agricultural in nature, with unincorporated areas making up most of the county’s territory. Benton County consists of several unincorporated communities, as well as the incorporated cities of Benton City, Kennewick, Prosser, Richland, and West Richland. The county is bordered on the west by Klickitat and Yakima Counties, on the north by Grant County, on the east by Franklin and Walla Walla Counties, and on the south by Umatilla County, Oregon. The county is located at the confluence of three rivers: the Columbia, Yakima, and Snake Rivers. The Yakima River runs through the middle of the county, to its confluence with the Columbia River in Richland.

Domestic and Irrigation Water

While more than 85 percent of the state's population gets their drinking water from public water systems, 15 percent obtain their water from domestic supplies. The use and development of a surface water or spring for a domestic water supply typically requires water right permitting from the Washington State Department of Ecology.

The irrigation districts of Roza, Sunnyside Valley, Benton, Kennewick, Kiona, Columbia, and Badger Mountain serve Benton County (Benton County 2022). The City of Kennewick's Municipal Water System obtains water from the Kennewick and Columbia Irrigation Districts (City of Kennewick 2017). The Lease Boundary is not located within any of the seven irrigation districts; however, the Kennewick Irrigation District is located just north of the Lease Boundary.

Wastewater

Although the State of Washington has more than 600 wastewater treatment plants, most rural residents in Benton County rely on on-site septic tanks and drain fields for their wastewater system needs. The Benton-Franklin Health District is responsible for permitting, overseeing the design and installation of, and inspecting small on-site septic systems with wastewater flows of less than 3,500 gallons per day (Benton-Franklin Health District 2021).

Water and Stormwater

Except for the Cities of Kennewick and Richland, the source of the water supply for Benton County and its municipalities is groundwater. In addition to withdrawing groundwater as their primary source of water, the Cities of Kennewick and Richland withdraw water from the Columbia River to assist in meeting their communities' demands. There are no public water supply wells located within the Lease Boundary. Sections 3.4 and 4.4, Water Resources, evaluate groundwater and stormwater resources within the Lease Boundary and Project vicinity.

Sections 3.7 and 4.7, Energy and Natural Resources, evaluate the supply and demand for water. As discussed in Section 3.7, the Application for Site Certification indicates that the Project would be supplied with water through a haul agreement with a private vendor (Horse Heaven Wind Farm, LLC 2022). The Applicant's water source documentation states that the vendor would likely acquire the water from the Kennewick Utility Services Division of Public Works. This division is responsible for the city's water treatment plant, wastewater treatment plant, wastewater collection, and water distribution programs.

Natural Gas

Cascade Natural Gas Corporation builds, operates, and maintains natural gas facilities serving Benton County. Cascade Natural Gas is an investor-owned utility serving customers in 16 counties in Washington State. The Pacific Northwest receives its natural gas from the southwest United States and Canada. Natural gas is supplied to the entire region via two interstate pipeline systems. The Northwest Pipeline Corporation owns and operates the network that supplies natural gas to Benton County. Natural gas is stored in a facility in Plymouth. A network of small-diameter distribution mains and service lines transports the gas to end-users (Benton County 2022). Sections 3.7 and 4.7, Energy and Natural Resources, evaluate the supply and demand for energy.

Electricity

The Bonneville Power Administration (BPA) is an agency of the U.S. Department of Energy. It wholesales electric power produced at 29 federal dams located in the Columbia-Snake River Basin, and one non-federal nuclear plant. Electricity is purchased from the BPA and supplied to areas in Benton County by either the Benton County Public Utility District (Benton PUD) or the Benton Rural Electric Association (Benton REA). The Lease Boundary includes areas that fall under the management of the Benton PUD and Benton REA. The service areas of each provider are as follows:

- **Benton PUD**: The Benton PUD's service area is entirely within Benton County and includes the cities of Kennewick, Benton City, Prosser, and portions of West Richland. The Benton PUD serves Benton County

except for the City of Richland, the U.S. Department of Energy's operations on the Hanford Reservation, and rural areas of the county that are served by the Benton REA (Benton County 2022).

- **Benton REA**: The Benton REA is a consumer-owned rural cooperative that serves portions of Benton, Lewis, and Yakima Counties. The Benton REA's 1,300-square-mile territory extends from the Columbia River at Paterson, north to the Hanford Reservation, and west to White Pass in the Cascade Mountains. The Benton REA serves the rural areas of Benton County and some urban areas (Benton County 2022).

Sections 3.7 and 4.7, Energy and Natural Resources evaluate the supply and demand for electricity within the Lease Boundary and Benton County.

Telecommunications and Cable Television

Several companies supply local, long-distance, and cellular telecommunications services in Benton County (Benton County 2022). Spectrum is the primary cable internet service provider in Benton County and is available to approximately 91 percent of its residents. In addition to Spectrum, several additional TV and internet service providers provide cable TV and internet access to the county's homes and businesses.

Solid Waste

Within Benton County, the UTC, Benton County, and municipalities regulate solid waste collection. The Benton County solid waste program is managed by the Benton County Road Department and operated in accordance with the Benton County Solid Waste Plan and Moderate Risk Waste Plan 2013 Update and with the advice of the Benton County Solid Waste Advisory Committee. Representatives from each of the cities in Benton County, the Washington State Department of Ecology, the Benton-Franklin Health District, and local refuse and recycling companies make up the Benton County Solid Waste Advisory Committee.

The generation of solid waste within Benton County and the cities of Benton City, Kennewick, Prosser, Richland, and West Richland is managed in alignment with the Benton County Solid Waste and Moderate Risk Waste Plan 2013 Update (Benton County 2014). The plan is intended to provide citizens and decision makers in Benton County with a guide to implement, monitor, and evaluate future activities related to solid waste for a 20-year period. As shown in **Table 3.15-1**, the county and its incorporated municipalities generated 263,603 tons of solid waste in 2010.

Table 3.15-1: Benton County Solid Waste Projections

Year	2010 (Actual)	2025 (Projected)	2030 (Projected)	2032 (Projected)
Waste Generated (tons)	263,603	326,505	346,517	350,206

Source: Benton County 2014

By 2032, Benton County anticipates that it may need to dispose of approximately 86,500 more tons of solid waste annually than in 2010. Benton County attributes the additional solid waste to projected population growth (Benton County 2014).

Columbia Ridge Landfill in Arlington, Oregon, receives most of the waste disposed of by Benton County. Other major landfills used for disposal of waste from Benton County include Horn Rapids Landfill in the City of Richland and Finley Buttes Regional Landfill in Morrow County, Oregon (Benton County 2014).

The following describes each of the three landfills that local vendors use for permanent solid waste disposal:

- **Columbia Ridge Landfill**: Columbia Ridge Landfill and Green Energy Plant (Columbia Ridge) provides disposal services for communities, businesses, and industries, primarily from Oregon and Washington. Columbia Ridge is a modern Subtitle D landfill that accepts primarily municipal solid waste (MSW) and industrial and special wastes. Columbia Ridge is permitted by the Oregon Department of Environmental Quality (DEQ) and is in full compliance with DEQ rules and regulations. Columbia Ridge Landfill was opened in 1990 and has a life expectancy of approximately 143 years and a permitted remaining capacity of 329 million tons. The landfill's recycling services include electronic waste and white goods. The landfill does not accept appliances, batteries, discarded vehicles, hazardous wastes, loose sharps, tires, or used oil (Waste Management 2019).
- **Horn Rapids Landfill**: Horn Rapids Landfill is owned and operated by the City of Richland Public Works Department. The landfill began receiving waste in 1974 and receives municipal garbage and yard waste. Horn Rapids Landfill receives the following waste streams as part of its waste disposal program: used motor oil (5-gallon limit per visit), antifreeze, cooking oil, automotive batteries, rechargeable batteries, and propane tanks and canisters. The landfill has an existing permitted footprint of 46 acres (City of Richland, Washington 2017).
- **Finley Buttes Landfill**: Finley Buttes Landfill is a modern MSW disposal facility permitted by the DEQ and is in full compliance with DEQ rules and regulations. The site accepts MSW, construction and demolition wastes, and special wastes (including liquids) with proper approval. The landfill does not accept old paints, chemicals, and cleaning supplies. The landfill began operations in 1991 and receives over 500,000 tons of MSW annually. Finley Buttes Landfill is 1,800 acres and is the second largest landfill in Oregon. As of 2015, its estimated available fill capacity was approximately 132 million tons of MSW. Currently, the site receives around 500,000 tons of MSW each year. The permitted life span of the landfill is approximately 300 years (Clark County, Washington 2015).

Currently, there are four certified waste haulers operating in Benton County. Solid waste collection in unincorporated Benton County is provided under certificates granted by the UTC. The following describes the four waste haulers whose service areas intersect the Lease Boundary and their waste transportation procedures:

- **Basin Disposal, Inc. (BDI)**: This waste hauler serves eastern Benton County. BDI first transports waste to the BDI transfer station in Pasco, Washington, and then hauls the waste to Finley Buttes Landfill in Boardman, Oregon, for disposal.
- **Ed's Disposal, Inc.**: This waste hauler serves central Benton County. Like BDI, Ed's Disposal, Inc., first transports waste to the BDI transfer station in Pasco and then hauls the waste to Finley Buttes Landfill in Boardman, Oregon, for disposal.
- **Sanitary Disposal, Inc.**: Sanitary Disposal, Inc., serves southwestern Benton County. Waste collected by Sanitary Disposal is transported to a transfer station in Umatilla County, Oregon, prior to disposal at Finley Buttes Landfill.
- **Waste Management of Kennewick (Waste Management)**: Waste Management serves areas throughout unincorporated Benton County. Waste collected by Waste Management is transported to its transfer station in Kennewick and then hauled to Columbia Ridge Landfill in Arlington, Oregon, for disposal (Benton County 2014).

Recycling Options

Within Benton County, Ray Poland and Sons, Inc. receives recyclable construction debris and waste including recyclable paper, plastic bottles, and metal cans and containers at their waste transfer station at 2627 S. Ely Street, Kennewick, Washington. E-Cycle Washington is a free program that makes it easy for Washington residents to recycle their broken, obsolete, or worn-out electronics. The following locations in Benton County participate in the E-Cycle Washington program and guarantee free recycling:

- Clayton Ward Recycling Center, 119 Albany Ave, Kennewick
- Clayton Ward Recycling Center, 1936 Saint St, Richland
- Goodwill Donation Centers

LightRecycle Washington is a program that accepts compact fluorescent light bulbs, as well as fluorescent tubes and high intensity discharge lights. The following locations within Benton County participate in the LightRecycle Washington program:

- Ace Hardware & Sporting Goods, 2831 W Kennewick Ave, Kennewick
- Batteries Plus Bulbs, 321 N Columbia Center Blvd, Kennewick
- Ace Hardware & Sporting Goods, 103 Keene Road, Richland
- Grigg's Department Store Ace Hardware, 1415 George Washington Way, Richland
- Patnode’s True Value, 600 9th St, Benton City (City of Richland, Washington 2022)

Streets

The roadway transportation system in Benton County consists of interstate highways, state highways, collectors, and local access routes. Benton County’s principal road concerns in rural areas are “all weather” access for agricultural product transport and more direct “farm to market” routes for agricultural products. As noted, Sections 3.14 and 4.14, Transportation, evaluate the Project’s impact on streets.

3.16 Socioeconomics

This section describes existing socioeconomic conditions in the proposed Horse Heaven Wind Farm (Project or Proposed Action) vicinity. The Project vicinity includes the areas 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. This evaluation of socioeconomics was prepared in alignment with Washington Administrative Code (WAC) 463-60-535 and describes existing demographics, labor market, and economic conditions, and public services related to socioeconomic conditions within the study area (defined below). Section 4.16 provides an evaluation of potential impacts of the Proposed Action and the No Action Alternative on socioeconomics.

Sections 3.13 and 4.13, Public Health and Safety, focus on the availability of public service agencies and medical facilities (e.g., law enforcement, fire protection, and medical emergency services) within the vicinity of the Lease Boundary. Sections 3.15 and 4.15, Public Services and Utilities, focus on utilities that serve the Project vicinity.

Regulatory Setting

WAC 463-60-535 states that an Application for Site Certification:

> *…shall include a detailed socioeconomic impact analysis which identifies primary, secondary, positive as well as negative impacts on the socioeconomic environment in the area potentially affected by the project, with particular attention to the impact of the proposed facility on population, work force, property values, housing, health facilities and services, education facilities, governmental services, and local economy.*

WAC 463-60-535 requires that an evaluation of socioeconomics include the area that employment related to a proposed action may affect within a 1-hour commute distance of the project site. WAC 463-60-535 states that an analysis of socioeconomics shall use the most recent data as published by the U.S. Census Bureau or State of Washington sources. The study area for socioeconomics, therefore, includes the area within the Lease Boundary and the populations of Benton, Franklin, Walla Walla, and Yakima Counties. Although the Oregon counties of Morrow and Umatilla are within a 1-hour commute of the Lease Boundary, this discussion of socioeconomics focuses solely on populations governed under the State of Washington's constitution.

WAC 197-11-448 identifies general welfare, social, and economic standing as conditions that contribute to an area's quality of life. WAC 197-11-448 states that agencies have the option to combine a review of socioeconomics with the preparation of an environmental impact statement.

Washington State Clean Energy Transformation Act (CETA) (Chapter 19.405 RCW) sets targets for reducing greenhouse gas emissions and establishes energy efficiency standards for buildings and appliances. CETA states that it is the policy of the state to eliminate coal-fired electricity, transition the state's electricity supply to one hundred percent carbon-neutral by 2030, and one hundred percent carbon-free by 2045. Included in CETA, is the following commitment from the State of Washington Legislature as included in RCW 19.405.010(6):

> *The legislature recognizes and finds that the public interest includes, but is not limited to: The equitable distribution of energy benefits and reduction of burdens to vulnerable populations and highly impacted communities; long-term and short-term public health, economic, and environmental benefits and the reduction of costs and risks; and energy security and resiliency. It is the intent of the legislature that in achieving this policy for Washington, there should not be an increase in environmental health impacts to highly impacted communities (RCW 19.045.010(6)).*

In 2021, the State of Washington legislature passed Revised Code of Washington (RCW) 70A.02 to reduce environmental and health disparities in the state and improve the health of all Washington State residents. RCW 70A.02 codified the state's approach to environmental justice (EJ) into law. The code requires that all covered agencies comply with all provisions of the statute, while all other state agencies should strive to apply the laws of the State of Washington, and the rules and policies of the agency, in accordance with the policies of RCW 70A.02, to the extent feasible.

The State of Washington's Growth Management Act (GMA) is a series of state statutes that require counties and cities whose population growth exceeds stated thresholds to develop a comprehensive plan that assists in managing their population growth. Due to the impact of population growth on housing affordability and availability and economic conditions, the following are additional provisions associated with the GMA under Chapter 36.70A RCW that are applicable to a review of socioeconomics:

- RCW 36.70A.010 states that the legislature finds that uncoordinated and unplanned growth, together with a lack of common goals expressing the public's interest in the conservation and the wise use of Washington's lands, pose a threat to the environment; sustainable economic development; and the health, safety, and high quality of life enjoyed by the State of Washington's residents.
- RCW 36.70A.010 states that it is in the public interest that citizens, communities, local governments, and the private sector cooperate and coordinate with one another in comprehensive land use planning.
- RCW 36.70A.010 states that it is in the public interest that economic development programs be shared with communities experiencing insufficient economic growth.
- RCW 36.70A 115 states that counties and cities that are required or choose to plan under RCW 36.70A.040 shall ensure that, taken collectively, adoption of and amendments to their comprehensive plans and/or development regulations provide sufficient capacity of land suitable for development within their jurisdictions to accommodate their allocated housing and employment growth, including the accommodation of, as appropriate, the medical, governmental, educational, institutional, commercial, and industrial facilities related to such growth, as adopted in the applicable countywide planning policies and consistent with the 20-year population forecast from the Washington State Office of Financial Management (OFM).
- RCW 43.62.030 states that the OFM shall annually determine the populations of all cities and towns of the state as of April 1. State agencies should use OFM population estimates for cities and towns in state program administration and in the allocation of selected state revenues.

The U.S. Environmental Protection Agency (EPA) defines EJ as the "fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies" (EPA 2016).

The EPA defines the term "fair treatment" to mean that "no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the negative environmental consequences of industrial, governmental, and commercial operations or programs and policies." The term "disproportionate impacts" refer to differences in impacts or risks that are extensive enough that they may merit action. (EPA 2016)

In accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, each federal agency "shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or

environmental effects of its programs, policies, and activities on minority populations and low-income populations." The Executive Order makes clear that its provisions apply fully to programs involving Native Americans" (CEQ 1997). According to RCW 70A.02.010, EJ means:

> "*The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, rules, and policies. Environmental justice includes addressing disproportionate environmental and health impacts in all laws, rules, and policies with environmental impacts by prioritizing vulnerable populations and overburdened communities, the equitable distribution of resources and benefits, and eliminating harm" (RCW 70A.02.010(8)).*

Background

The Benton-Franklin Council of Governments (BFCOG) administers the Benton-Franklin Economic Development District (BFEDD). The BFCOG is the regional economic planning agency for Benton and Franklin Counties. Since 2014, the Benton and Franklin County region has experienced an increase in both population and economic growth. According to the BFEDD, economic growth measured by increases in employment opportunities through local businesses within the region grew by 2.1 percent per year between 2013 and 2019. This expansion in local employment contributed to the region's increase in gross domestic product of 3.5 percent per year since 2013 (BFCOG 2021).

Benton and Franklin Counties also contain the Kennewick-Richland Metropolitan Statistical Area (MSA). MSAs consist of integrated geographic regions typically made up of an urbanized economic core and economically related counties (U.S. Census Bureau 2020a). The U.S. Office of Management and Budget delineates MSAs according to published standards that are applied to U.S. Census Bureau data.

The general concept of an MSA is that of a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core. The Tri-Cities of Kennewick, Pasco, and Richland are the core of the Kennewick-Richland MSA. Benton and Franklin are economically related counties that share a high degree of economic integration with the urbanized core and one another.

3.16.1 Affected Environment

Benton County is in southeastern Washington State. The Columbia River bounds Benton County to the north, east, and south, while Klickitat and Yakima Counties bound Benton County to the west. Benton County is predominantly rural and agricultural in nature, with unincorporated areas making up most of the jurisdiction. The Project's Lease Boundary is south of the Tri-Cities. Kennewick and Richland are located within Benton County, while Pasco is located in Franklin County.

As previously noted, WAC 463-60-535 states that the study area for socioeconomic impacts shall include the area that may be affected by employment within a 1-hour commute distance of the project site. In addition to Benton and Franklin Counties, Walla Walla and Yakima Counties in Washington are also within a 1-hour commute of the Lease Boundary.

3.16.1.1 Population and Growth Rate

Increases in population can occur from either net in-migration or natural increase. Net in-migration occurs when more people move to an area than leave. Natural increase occurs when there are more births than deaths (OFM n.d.[a]). The State of Washington's approximate population is 7,766,975 (OFM n.d.[b]). Since 2010, the

State of Washington's population has been growing at an average of over 100,000 persons per year. Between 2011 and 2021, in-migration accounted for 66 percent of Washington's population growth. Correspondingly, natural increases in population growth accounted for the remaining 34 percent. The OFM's projections for the state's population suggest that the pace of growth is likely to increase over the ensuing decades.

As shown in **Table 3.16-1**, Benton County had an estimated population of 209,400 as of 2021. This ranks Benton County as the 10th most populated county in the State of Washington (OFM n.d.[b]).

Table 3.16-1: Population (Postcensal Estimates) and Growth Management Act Mid-Level Growth Rate Projections

Location	2011 Population	2021 Population	Average Annual Growth Rate (2011–2021)	2030 Projection	2040 Projection	2050 Projection
Benton County	177,900	209,400	17.7 %	228,162	250,524	267,139
Benton City	3,145	3,500	11.3 %	Not Available	Not Available	Not Available
Kennewick	74,665	84,620	13.3 %	Not Available	Not Available	Not Available
Prosser	5,780	6,130	6.1 %	Not Available	Not Available	Not Available
Richland	49,090	61,320	24.9 %	Not Available	Not Available	Not Available
West Richland	12,200	17,070	39.9 %	Not Available	Not Available	Not Available
Franklin County	80,500	98,350	22.2 %	127,443	158,574	182,589
Connell	5,150	5,125	-0.48 %	Not Available	Not Available	Not Available
Kahlotus	190	145	-23.7 %	Not Available	Not Available	Not Available
Mesa	495	390	-21.2 %	Not Available	Not Available	Not Available
Pasco	61,000	78,700	29.0 %	Not Available	Not Available	Not Available
Walla Walla County	58,800	62,100	5.6 %	59,036	58,963	58,573
Yakima County	244,700	258,100	5.5 %	246,914	252,912	258,007
State of Washington	6,767,900	7,766,975	14.7 %	8,503,178	9,242,022	9,855,117

Sources: OFM n.d.[b], n.d.[c]
Note: Postcensal data for each calendar year between the census and the current year are updated annually using information on the components of population change.

An estimated 82 percent of Benton County's population lives in one of five incorporated communities. Of the county's incorporated communities, Kennewick has the largest population, with 84,620 residents. Kennewick's population accounts for approximately 40 percent of the county's total population. Richland is the second largest incorporated community within Benton County with a total population of 61,320 residents (OFM n.d.[b]). Benton County had an average population density of 123.17 persons per square mile in 2021. Benton County's population density is greater than the statewide average of 116.88 persons per square mile (OFM n.d.[d]).

Benton County's total population increased by 31,500 people or 17.7 percent between 2011 and 2021. Benton County's increase in population exceeded the state average of approximately 14.7 percent (OFM n.d.[e]). When

compared to the state's population growth, migration played a slightly smaller role in Benton County's increase. In-migration accounted for approximately 63 percent of the county's growth in population over this period. Natural increase accounted for the remaining 37 percent (OFM n.d.[e]).

In 2021, Franklin County's estimated population was 98,350. Pasco is the largest incorporated community in Franklin County, with a population of 78,700. Franklin County had an average population density of 79.21 persons per square mile in 2021, compared to a statewide average of 116.88 persons per square mile (OFM n.d.[b], n.d.[d]). The total population in Franklin County increased by more than 17,850 people, or 22 percent, between 2011 and 2021. Franklin County's population growth rate exceeded the state's average of 14.7 percent over the same period. Natural increase accounted for more than 65 percent of Franklin County's population growth, with net in-migration making up the remaining 35 percent (OFM n.d.[e]).

In 2021, the populations of Walla Walla and Yakima Counties were 62,100 and 258,100, respectively. The largest incorporated community in Walla Walla County is the City of Walla Walla, with a 2021 population of 33,680. The largest incorporated community in Yakima County is the City of Yakima, with a population of 97,810. The population density for Walla Walla County in 2021 was 48.90 persons per square mile, while the population density of Yakima County was 60.10 persons per square mile. The population densities of Walla Walla and Yakima Counties are approximately half the statewide average of 116.88 persons per square mile (OFM n.d.[b], n.d.[d]).

Population Projections

The OFM prepares county population projections for planning under Washington State's GMA. The OFM prepares high-, medium-, and low-growth expectations for each county, with the medium series considered the most likely because it is based on assumptions that have been validated with past and current information. Current projections developed in support of the GMA extend through 2040, with supplemental projections developed from 2040 through 2050. **Table 3.16-1** presents projection data based on the OFM's medium growth scenario.

From 2021 to 2030, the populations of Benton and Franklin Counties are projected to increase by approximately 9 percent and 30 percent, respectively. These percentages indicate that Benton County's percent increase in population would be similar to that of the State of Washington's (9 percent) over the same nine-year period. As noted, Franklin County is projected to experience a much higher percent growth rate than either Benton County or the State of Washington over the same nine-year period (OFM n.d.[e]).

As shown in **Table 3.16-1**, the OFM has projected population growth for Benton and Franklin Counties as far out as 2050. The projected 17 percent increase in population for Benton County during the 20-year period between 2030 and 2050 is anticipated to be slightly higher than the State of Washington's 15 percent increase over the same period. Franklin County's 43 percent increase in population from 2030 to 2050 is expected to be almost three times the percent increase that Washington is projected to experience over the same period (OFM n.d.[e]).

From 2021 to 2030, population is projected to increase by approximately 6 percent and 5 percent in Walla Walla and Yakima Counties, respectively. The projected growth rates for Walla Walla and Yakima Counties suggest a slower increase in population for these counties than expected for the State of Washington or Benton and Franklin Counties over the same nine-year period. For the 20-year period from 2030 to 2050, the OFM has projected that the population of Walla Walla County would decrease by less than 1 percent. Over the same 20-year period, Yakima County's population is expected to increase by 4 percent. Both percent changes in population would be

far less than the 15 percent increase in population that the OFM has projected for the State of Washington as a whole (OFM n.d.[e]).

3.16.1.2 People of Color Populations

The White House Council on Environmental Quality (CEQ) guidance states that “minority populations should be identified where either: a) the minority population of the affected area exceeds 50 percent; or b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis” (CEQ 1997).

The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, a census tract, or other similar unit chosen so as to not artificially dilute or inflate the affected minority population (CEQ 1997).

Table 3.16-2 presents race and ethnicity data from the U.S. Census Bureau’s 2020 Decennial (every 10 years) Census of Population and Housing for the study area. According to the most recent census estimates, approximately 64 percent of the population of Washington State is white. Persons of Hispanic or Latino origin were identified as the single largest people of color group, accounting for 14 percent of the state’s total population. In Benton County, 66 percent of the population identified themselves as white alone, while approximately 24 percent of Benton County’s population identified themselves as Hispanic alone. The percentage of Benton County’s population that identifies themselves as Hispanic alone is higher than the statewide average of 14 percent (U.S. Census Bureau 2021a).

Table 3.16-2: Breakdown by Race and Ethnicity by City and County (2020 Decennial Census) for the Project Study Area

Location within Study Area	Total Population for Whom Race Status Is Determined	Hispanic or Latino %	White alone %	Black or African American alone %	American Indian and Alaska Native alone %	Asian alone %	Native Hawaiian and Other Pacific Islander alone %	Some Other Race alone %	Combined Percentage of People of Color who Identify as One Race or Ethnicity Alone
Benton County, Washington	206,873	23.8	65.6	1.3	0.6	3.0	0.3	0.5	29.5
Benton City, Washington	3,479	34.8	58.6	0.3	0.8	0.5	0.2	0.6	37.3
Kennewick city, Washington	83,921	30.2	59.2	1.7	0.6	2.8	0.4	0.5	36.1
Prosser city, Washington	6,062	46.0	47.4	0.5	0.4	2.2	0.2	0.4	49.6
Richland city, Washington	60,560	13.3	73.3	1.4	0.4	5.2	0.2	0.6	21.1
West Richland city, Washington	16,295	13.7	76.8	0.8	0.6	2.1	0.1	0.5	17.8
Franklin County, Washington	96,749	54.2	38.5	1.7	0.5	1.9	0.2	0.3	58.7
Connell city, Washington	5,441	41.1	42.5	8.0	2.0	2.2	0.0	0.0	53.3

Table 3.16-2: Breakdown by Race and Ethnicity by City and County (2020 Decennial Census) for the Project Study Area

Location within Study Area	Total Population for Whom Race Status Is Determined	Hispanic or Latino %	White alone %	Black or African American alone %	American Indian and Alaska Native alone %	Asian alone %	Native Hawaiian and Other Pacific Islander alone %	Some Other Race alone %	Combined Percentage of People of Color who Identify as One Race or Ethnicity Alone
Kahlotus city, Washington	147	18.4	73.5	0.0	0.0	0.7	0.0	0.7	19.7
Mesa city, Washington	385	76.1	19.5	0.0	0.0	1.6	0.0	0.0	77.7
Pasco city, Washington	77,108	57.5	35.3	1.5	0.4	2.0	0.2	0.4	62.0
Walla Walla County, Washington	62,584	22.7	68.0	1.6	0.7	1.5	0.2	0.4	27.1
Yakima County, Washington	256,728	50.7	40.3	0.7	3.6	1.1	0.1	0.4	56.5
Washington	7,705,281	13.7	63.8	3.8	1.2	9.4	0.8	0.6	29.5

Source: U.S. Census Bureau 2021
Notes:
Table 3.16-2 is based on respondents that identified their racial makeup based on one race alone. Percentages for each jurisdiction may not equal 100 percent as individuals are allowed to self-identify based on any number of racial groups.
“Other races” as reported by the U.S. Census Bureau could be “Other Race” or combination of races.

Six census block groups intersect with or are located adjacent to the Project Lease Boundary (**Figure 3.16-1**). A census block group is a statistical subdivision of a census tract, generally defined to contain between 600 and 3,000 people and 240 and 1,200 housing units (U.S. Census Bureau 2022). **Table 3.16-3** and **Figure 3.16-1** present race and ethnicity data for the six census block groups that intersect with or are adjacent to the Lease Boundary.

Table 3.16-3: Race and Ethnicity of Census Block Groups Intersecting the Project Lease Boundary

Lease Boundary	Total Population for Whom Race States Is Determined	White Alone	White Alone (%)	Hispanic Alone	Hispanic Alone (%)	Other Races Alone	Other Races (%)	All People of Color (Hispanic and other Races)	All People of Color (Hispanic and Other Races) (%)
Census Tract 108.07, Block Group 1	1,558	1,194	77	232	15	63	4	295	19
Census Tract 108.14, Block Group 1	5,129	4,286	84	406	8	194	4	600	12
Census Tract 115.01, Block Group 1	1,392	966	69	344	25	28	2	372	27
Census Tract 115.06, Block Group 1	2,161	1,755	81	171	8	132	6	303	14
Census Tract 116, Block Group 1	835	442	53	366	44	11	1	377	**45***
Census Tract 118.01, Block Group 3	898	705	79	133	15	25	3	158	18
Block Group Totals	11,973	9,348	78	1,652	14	453	4	2,105	18
Benton County	206,873	135,718	66	49,339	24	11,641	6	60,980	29[(a)]

Source: 2020 Decennial Census (U.S. Census Bureau 2021a)
Note:
[(a)] Reference threshold for the analysis of people of color
Total percent population may not be equal to 100 percent due to rounding.
Bold* values = Percentage of people of color that are greater than reference threshold

When comparing the percentage of people of color who reside in Benton County (29 percent) to the percentage of people of color who reside in other counties within the socioeconomic study area (**Table 3.16-2**), the percentage of people of color population within the Benton County (29 percent) is considered a conservative reference threshold for people of color analysis within the identified six census block groups that intersect with or are adjacent to the Lease Area.

White alone represents the majority population in all six census block groups. The percentage of white residents ranges from 53 to 84 percent within the six block groups. For most of the block groups (four out of six block groups), between 8 and 15 percent of residents identify as Hispanic alone. Percents for other races range between 1 and 6 percent for all census block groups. The percentage of people of color for the six census block groups combined (18 percent) is well below the identified threshold for this analysis (29 percent). However, the population of people of color in Census Tract 116, Block Group 1 (45 percent) is greater than this value for Benton County as a whole (29 percent), which is the identified reference community in this study.

Census Tract 116, Block Group 1, spans a very large area, with the majority falling outside the Project Lease Boundary. This census block group is among the least populated of the census block groups, but it is the largest census block group that intersects with the Project Lease Boundary. Review of aerial imagery indicated that this block group contains little built-up development, and proximity values to other EJ indicators, such as superfund, traffic, and hazardous waste, are low in this area (**Appendix 3.16-1**) (EPA 2022).

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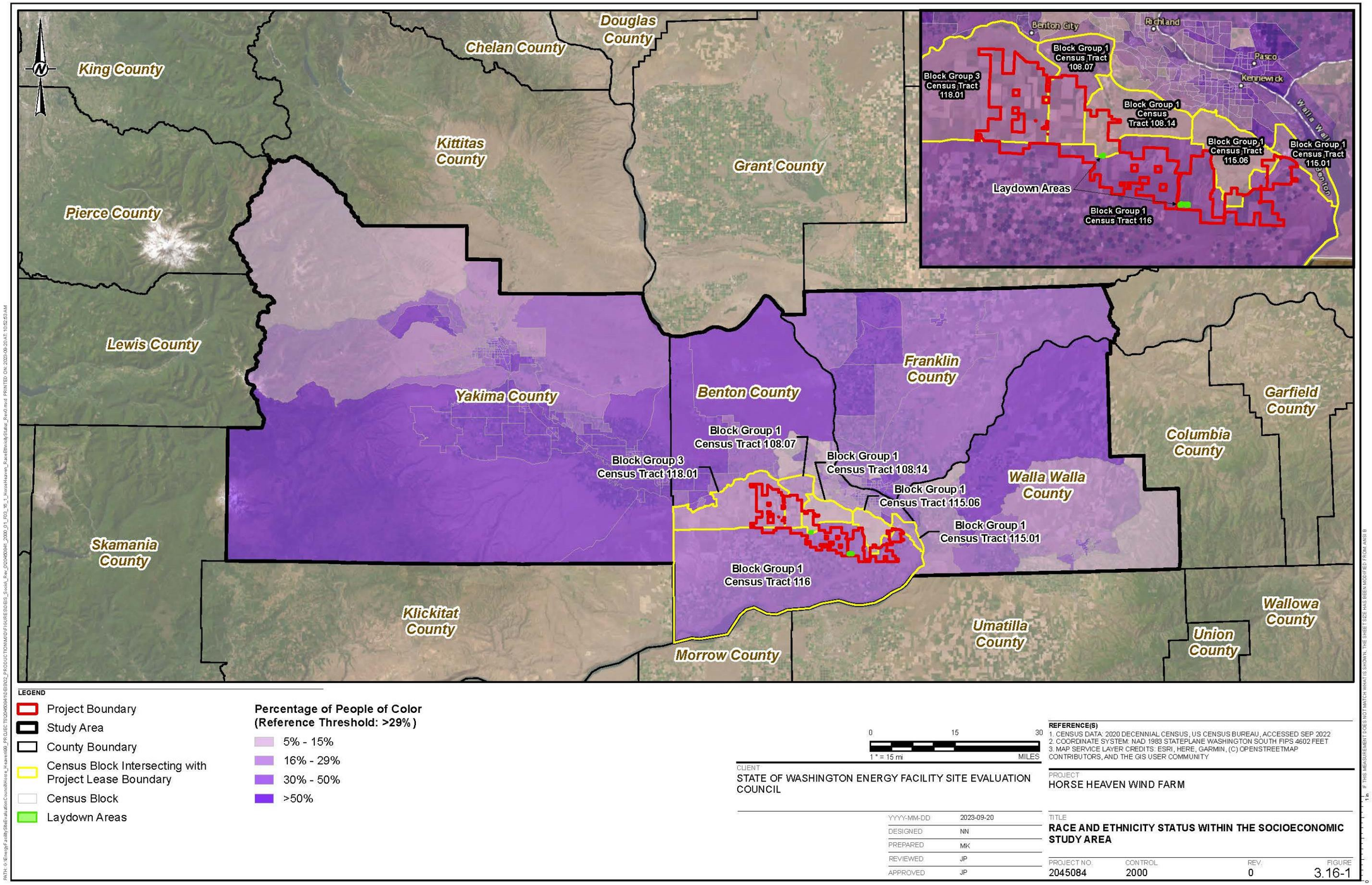

Figure 3.16-1: Race and Ethnicity Status

3.16.1.3 Low-income Population

According to the CEQ, a community that has a significant amount of its population living at or below the poverty level could be considered a low-income community (CEQ 1997). RCW 19.405.020 defines low-income as follows:

> *Household incomes as defined by the department or commission, provided that the definition may not exceed the higher of eighty percent of area median household income or two hundred percent of the federal poverty level, adjusted for household size.*

In accordance with RCW 19.405.020, this analysis defines low-income as individuals who make less than 200 percent of the federal poverty level, adjusted for household size.

Table 3.16-4 shows income and poverty data for the Project's socioeconomic study area. The estimated share of total households below the poverty level in Washington State is 11 percent. Poverty levels were slightly higher in Benton County (12 percent) and Franklin County (15 percent). Similarly, the estimated shares of total households below the poverty level were 13 percent in Walla Walla County and 17 percent in Yakima County. In Benton County, the share of households below the poverty level in its five incorporated communities ranged from about 8 percent in West Richland to 18 percent in Prosser. In Franklin County, the share of households below the poverty level in its four incorporated communities ranged from about 9 percent in Kahlotus to 29 percent in Mesa (U.S. Census Bureau 2020b).

Table 3.16-4: Household Income Level within the Project Study Area

Geographic Area	Median Household Income	Mean Household Income
Benton County	$69,023	$87,525
Benton City	$55,175	$64,786
Kennewick	$59,533	$74,073
Prosser	$50,164	$57,745
Richland	$77,686	$99,631
West Richland	$99,817	$108,641
Franklin County	$63,584	$79,145
Connell	$51,154	$55,688
Kahlotus	$51,250	$54,681
Mesa	$50,000	$61,620
Pasco	$62,775	$77,031
Walla Walla County	$57,858	$76,351
Yakima County	$51,637	$69,036
State of Washington	$73,775	$98,983

Note: Income presented in the American Community Survey was adjusted by the U.S. Census Bureau for inflation based on 2019 dollars
Source: U.S. Census Bureau American Community Survey 5-year estimate (U.S. Census Bureau 2020b)

As shown in **Table 3.16-4**, median incomes were below the state average in Benton, Franklin, Walla Walla, and Yakima Counties. This was also the case for the incorporated communities of Benton and Franklin Counties, with the exceptions of Richland and West Richland, Washington.

Table 3.16-5 presents the low-income data for the Project's socioeconomic study area. In comparison to the State of Washington, the low-income level in the study area was the highest in Yakima County (6 percent of low-income

population in the State of Washington), followed by Benton County (3 percent of low-income population in the State of Washington). This value for the study area (Benton, Franklin, Walla Walla, and Yakima Counties together) is 11.62 percent, indicating that the low-income population within the study area represents 11.62 percent of the low-income population within the State of Washington.

Table 3.16-5: Low-income Status Within the Project Study Area

Lease Boundary	Total Population for Whom Income Status Is Determined	Low-income Population (All Individuals with Income below 200% of the Federal Poverty Level)	Percentage of low-income Population (Comparison to Total Population) (%)	Comparison of All Individuals with Income Below 200% of the Federal Poverty Level and this Value for the State of Washington (%)
Benton County	198,731	52,180	26	3
Franklin County	90,828	30,749	34	1.7
Walla Walla County	55,803	17,142	31	1
Yakima County	246,943	106,806	43	6
Benton, Franklin, Walla Walla, and Yakima Counties combined	592,305	206,877	35	11.62
State of Washington	7,372,433	1,780,174	24	100

Source: U.S. Census Bureau, American Community Survey, Table S1701, Poverty Status in the past 12 months, 2020 (U.S. Census Bureau 2020b)

Because of the location of the Project, and the fact that Benton County has the lowest percentage of low-income individuals in comparison to other counties within the Project study area, Benton County was selected as the most conservative reference community, and therefore the percentage of low-income individuals in Benton County (26 percent) was used as the conservative reference threshold for the analysis of low-income status in this study.

Table 3.16-6 and **Figure 3.16-2** present low-income data for the census block groups that intersect with or are adjacent to the Project Lease Boundary. The total population of low-income individuals within the studied census block groups (1,721) constitutes 3.3 percent of the total population of low-income individuals within Benton County as a whole (52,180), while the total population for whom income status is determined within the studied census block groups (12,637) constitutes 6.3 percent of the total population within Benton County (198,731).

Table 3.16-6: Low-income status of Census Block Groups Intersecting the Project Lease Boundary

Geographic Area	Total Population for Whom Income Status is Determined	Low-income Population (All Individuals with Income Below 200% of the Federal Poverty Level)	Percentage of low-income Population (Comparison to Total Population) (%)	Percent of Low-income Population (Comparison to Benton County Low-income Population) (%)
Census Tract 108.07, Block Group 1	1,772	330	19	0.63
Census Tract 108.14, Block Group 1	5,250	414	8	0.8
Census Tract 115.01, Block Group 1	1,077	446	**41**	0.85
Census Tract 115.06, Block Group 1	2,736	51	2	0.1
Census Tract 116, Block Group 1	977	224	23	0.43
Census Tract 118.01, Block Group 3	825	256	**31**	0.49
Census Block Groups Totals	12,637	1,721	14	3.3
Benton County	198,731	52,180	26[(a)]	100
State of Washington	7,372,433	1,780,174	24	-

Source: U.S. Census Bureau, America Community Survey, Table S1701, Poverty Status in the past 12 months, 2020 (U.S. Census Bureau 2020b)
Note:
[(a)] = Reference threshold for the analysis of low-income communities
Bold = Percentage of low-income communities that is greater than the reference threshold.

While the percentage of low-income population for the six census block groups combined (14 percent) is well below the identified low-income threshold for this analysis (26 percent), Census Tract 115.01, Block Group 1 and Census Tract 118.01, Block Group 3 with 41 percent and 31 percent of low-income population, respectively, exceed the low-income threshold (26 percent) and are identified as low-income communities.

Census Tract 115.01, Block Group 1, with a low-income population of 41 percent, is the only census block group (among the six) that is completely outside the Project Lease Boundary but is located adjacent to the Project Lease Boundary. This census block group is also among the least populated block groups (1,077 individuals for whom income status is determined). Review of aerial imagery indicated a low amount of built-up development and dispersed housing in the majority of the areas within this census block group. Proximity values to other EJ indicators, such as superfund, traffic, and hazardous waste are low for this census block group (**Appendix 3.16-1**) (EPA 2022).

Similarly, Census Tract 118.01, Block Group 3, with a low-income population of 31 percent, has the lowest population of individuals for whom income status is determined (825 individuals). While this census block group does intersect the Project Lease Boundary, large portions are located outside the Project Lease Boundary.

Review of the imagery indicated a very low amount of built-up areas and dispersed housing in this census block group. Also, proximity values to other EJ indicators, such as superfund, traffic, and hazardous waste are low for this census block group (**Appendix 3.16-1**) (EJ Screen 2022).

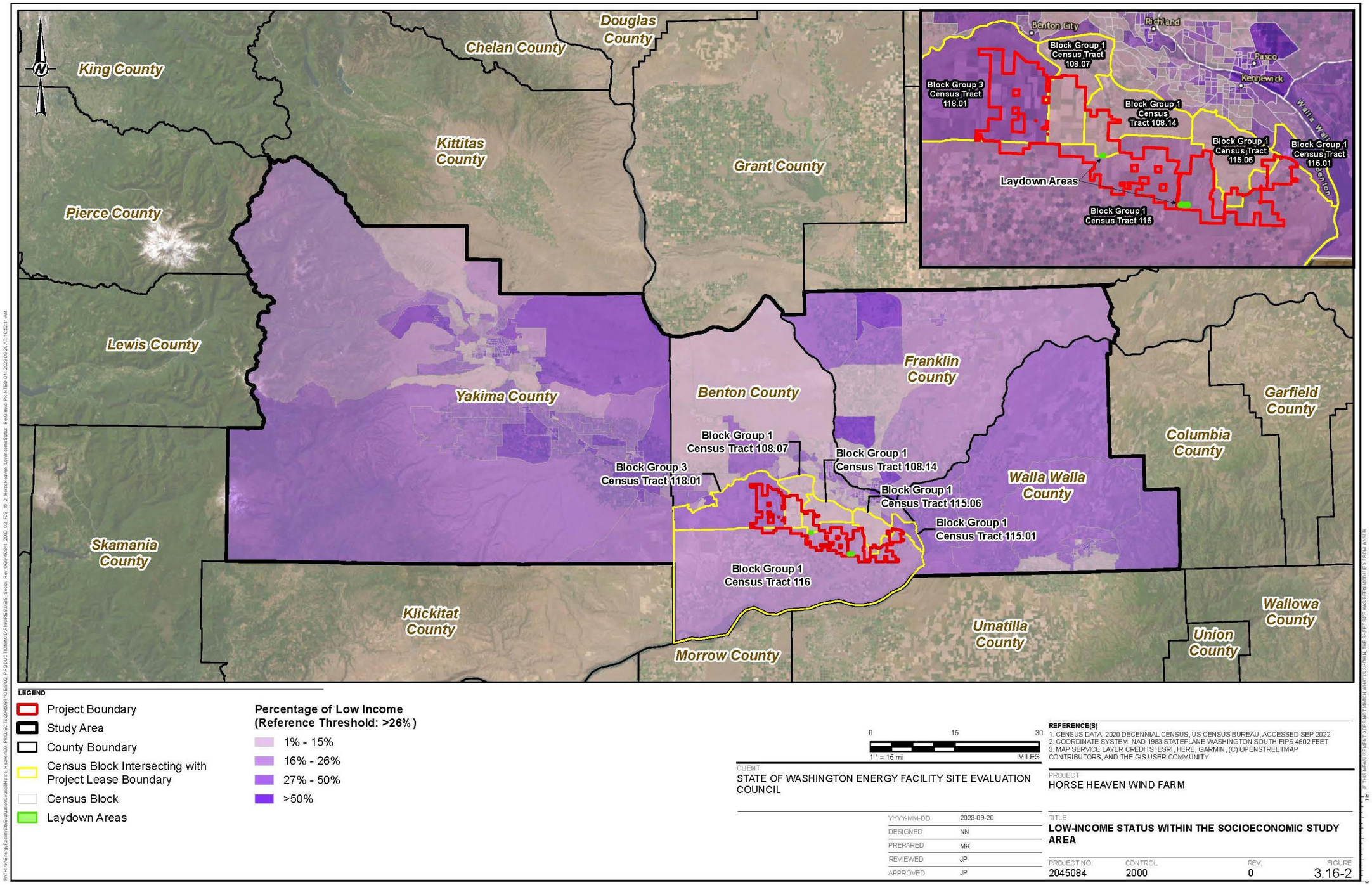

Figure 3.16-2: Low-income Status within the Socioeconomic Study Area

3.16.1.4 Economic Conditions

The economy in Benton and Franklin Counties has largely been dependent on federal funding for Hanford Site projects. Employment in the Hanford area has decreased in recent years as part of federal spending cuts. This decrease was part of a region-wide decline in employment between 2012 and 2013 and the end of American Recovery and Reinvestment Act funding (BFCOG 2021).

As the Hanford Site's role in the region's economy decreases, agriculture, food processing, and transportation services have experienced growth in recent years. Additional economic trends within the study area relate to increases in agri-tourism. These changes in economic conditions are often associated with an emerging viticulture (wine) industry and specialty crop farming and tourism-related commercial and recreational activities. The region's tourism activities are often associated with the Snake, Columbia, and Yakima Rivers (Benton County 2022).

3.16.1.5 Fiscal Conditions

Fiscal policy is the use of government spending and taxation to influence the economy. Governments typically use fiscal policy to promote strong and sustainable growth and reduce poverty. The following describes the existing fiscal conditions of the four Washington counties in the study area:

- Benton County's most recent financial statement filed with the Office of the Washington State Auditor was submitted in 2020 and covered the period from January 1, 2019 through December 31, 2019. Benton County's general fund is its principal operating reserve. The 2020 annual filing by Benton County with the Washington State Auditor indicates that the county's general fund had total revenues of approximately $69.7 million for the fiscal year that ended December 31, 2019. Taxes accounted for approximately 56 percent of the total account. In 2019, Benton County had total general fund expenditures of approximately $60.1 million, with spending on general government and public safety accounting for approximately 96 percent of the account's total distribution. The financial statement presented no noticeable trends between 2019 and 2020. This is due to Benton County operating under a biennium budget cycle that required no reportable amendments for year two (Washington State Auditor 2020a).
- Franklin County's most recent financial statement filed with the Office of the Washington State Auditor was submitted in 2020 and covered the period of January 1, 2019 through December 31, 2019. Franklin County's general fund is the County's primary operating reserve and is the largest source of day-to-day service delivery. Franklin County had total general fund revenues of $29 million, with property taxes and sales and use taxes accounting for 38 percent and 24 percent of the total account, respectively. Franklin County had total general fund expenditures of approximately $31 million, with spending on general government and public safety accounting for three-quarters of the account's total distribution. The General Fund's total 2019 revenue of $29,046,379 was $849,362 over 2018's total revenue, or an increase of 3 percent year over year. (Washington State Auditor 2020b).
- Walla Walla County's most recent financial statement filed with the Office of the Washington State Auditor was submitted in 2020 and covered the period from January 1, 2019 through December 31, 2019. The general fund is the chief operating reserve of Walla Walla County. Walla Walla County had total general fund revenues of approximately $18.4 million. Of the approximate $13.6 million in taxes collected, 64.3 percent was from property taxes, 35.1 from sales taxes, and 0.6 percent from other taxes. The total 2019 general fund expenditures, including transfers, were approximately $17.8 million, with spending on general government and public safety accounting for 89 percent of the account's total distribution. Both Walla Walla

County's 2019 general fund revenues and expenditures slightly increased when compared with 2018 (Washington State Auditor 2020c).

- Yakima County's most recent financial statement filed with the Office of the Washington State Auditor was submitted in 2021 and covered the period January 1, 2020, through December 31, 2020. The general fund is the chief operating reserve of Yakima County. Yakima County's general fund had a revenue increase of over $13 million from 2019 revenue. Twelve million of the increase in revenue was attributed to intergovernmental revenues dealing with COVID-19 funds. In 2020, Yakima County had general fund revenues of $80.4 million. Yakima County's general fund expenditures in 2020 were $61.2 million, with spending on general government and public safety accounting for 89 percent of the account's total distribution. Total revenues for Yakima County were over $185 million in 2020, an increase from 2019's total revenue's of $157 million. (Washington State Auditor 2020d).

3.16.1.6 Taxation

In accordance with RCW 82.08.020, the State of Washington imposes a sales and use tax of 6.5 percent. Sales tax applies to most retail sales of "tangible personal property" within Washington, including some services such as lodging and related services. Use taxes are equivalent to sales taxes and apply to taxable purchases made out of state for use in Washington. State sales and use tax revenues are deposited in the state general fund.

In addition to the 6.5 percent state sales and use tax, local governments can impose local sales taxes on the same tax base as the state. Cities and counties can impose up to 1 percent in "unrestricted" sales taxes that may be used for any lawful government purpose, as well as a number of "restricted" local sales taxes that may only be used for specific purposes (Municipal Research and Services Center 2022). The following describes the 2022 sales tax rates for the counties that occur within the study area (Washington State Department of Revenue 2021):

- **Benton County:** The overall local sales tax total for unincorporated Benton County is 2.1 percent.
- **Franklin County:** The overall local sales tax total for unincorporated Franklin County is 2.1 percent.
- **Walla Walla County:** The overall local sales tax for unincorporated Walla Walla County is 1.5 percent.
- **Yakima County:** The overall local sales tax for unincorporated Yakima County is 1.5 percent.

The State of Washington provides a sale and use tax exemption to wind and solar facilities with a generating capacity over 1 kilowatt. The exemption may be claimed in the form of a sales or use tax remittance of 50, 75, or 100 percent of the sales or use tax paid on qualified machinery and equipment, and installment labor and services (RCW 82.08.962; RCW 82.12.962). The amount of the remittance is determined by criteria established by the Washington Department of Labor and Industries and applied for through the Washington Department of Revenue. The program applies to projects where installation of exempt machinery and equipment has begun after January 1, 2020 and has completed by December 31, 2029 (RCW 82.08.962).

Property taxes are a primary source of revenue for counties in Washington State. The property tax system in Washington State is a "budget-based" system, which means that counties and other taxing districts first establish the total dollar amount of property tax revenue they wish to generate in the upcoming year. Once this amount is established, the county assessor then calculates the applicable levy rate based on the total assessed value of all properties in the county.

The total dollar amount of property taxes to be collected in one year is known as the levy amount. In Washington, the amount the levy can grow from year to year is limited by the "levy lid," also known as the "1% increase limit" or "101% limit." For counties with more than 10,000 residents, like Benton County, annual increases in the levy amount cannot exceed 1 percent or the rate of inflation, whichever is lower, plus an additional amount generated by new construction and "add-ons." These "add-ons" include increases in assessed valuation from the previous year due to new construction and property improvements and construction of renewable energy electricity-generating facilities, including turbine and solar facilities (RCW 84.55.010; Horse Heaven Wind Farm, LLC 2022).

Individual government units with property tax authority in Benton County include the state, county, cities, school districts, hospitals, libraries, and fire districts. These government units, known as taxing districts, combine to form Tax Areas, which represent unique combinations of overlapping taxing districts. The resulting combined levy or millage rate varies by Tax Area (Horse Heaven Wind Farm, LLC 2022). The following describes the property tax process for the State of Washington and Benton County:

- The levy, or millage (mills) rate, which determines the amount an individual property owner owes, is expressed as a dollar amount per $1,000 assessed value. A jurisdiction with a levy rate of 10 mills would impose tax at the rate of $10 per $1,000 of property value.
- The Washington State Constitution requires that levy rates are uniform for all properties within a taxing district. The one exception to this requirement is for agricultural, timber, and open space land.
- The Benton County Levy Rates report for 2021 identified 52 Tax Areas, with corresponding levy rates ranging from 7.37 to 12.8 mills (Benton County 2021).

3.16.1.7 Workforce and Economics

The region has experienced an increase in economic activities through job expansion in multiple industries. The increase in job opportunities has helped the region retain population and encourage in-migration. The diversity in workforce participation includes professional and technical services, healthcare, education, construction, manufacturing, retail trade, transportation, warehousing, and agriculture (BFCOG 2021). **Table 3.16-7** presents employment data by economic sector for the study area.

Table 3.16-7: Employment by Economic Sector

Economic Sector	Benton County	Franklin County	Walla Walla County	Yakima County	State of Washington
Total employment	111,173	42,590	36,328	132,124	4,385,827
Farm employment	5,124	4,030	3,535	19,290	90,166
Nonfarm employment	106,049	38,560	32,793	112,834	4,295,661
Private nonfarm employment	93,565	31,639	26,514	94,702	3,655,279
Forestry, fishing, and related activities	NA	NA	NA	10,470	43,128
Mining, quarrying, and oil and gas extraction	NA	NA	NA	95	8,601
Utilities	165	NA	143	175	5,861
Construction	9,124	3,209	1,519	5,409	271,188
Manufacturing	4,892	3,850	4,330	8,570	289,614
Wholesale trade	1,629	2,068	911	4,951	141,805
Retail trade	11,803	4,140	3,007	12,896	458,066

Table 3.16-7: Employment by Economic Sector

Economic Sector	Benton County	Franklin County	Walla Walla County	Yakima County	State of Washington
Transportation and warehousing	2,352	NA	725	4,680	189,866
Information	778	177	323	650	160,563
Finance and insurance	3,794	712	1,100	2,939	172,563
Real estate and rental and leasing	3,875	1,377	1,168	3,655	202,481
Professional, scientific, and technical services	11,151	1,176	NA	3,268	343,000
Management of companies and enterprises	611	46	NA	754	48,440
Administrative and support and waste management and remediation services	11,405	1,519	NA	3,038	213,476
Educational services	1,111	614	NA	1,974	78,717
Health care and social assistance	15,043	3,744	NA	18,282	491,237
Arts, entertainment, and recreation	1,544	411	NA	1,359	80,819
Accommodation and food services	7,281	2,043	NA	6,437	247,746
Other services (except government and government enterprises)	4,850	2,196	1,607	5,100	211,128
Government and government enterprises	12,484	6,921	6,279	18,132	640,382
Federal civilian	789	499	1,983	1,289	78,622
Military	519	232	147	711	68,608
State and local	11,176	6,190	4,149	16,132	493,152
State government	1,499	1,765	1,856	2,947	152,806
Local government	9,677	4,425	2,293	13,185	340,346

Source: U.S. Bureau of Economic Analysis 2020 Data (BEA 2022a, 2022b)
NA = not available

The labor market within the State of Washington and study area is summarized as follows (BEA 2022a, 2022b):

- An estimated 111,173 people were employed in Benton County in 2020, while 42,590 were employed in Franklin County. Employment in Benton and Franklin Counties represents 3 percent and 1 percent of the State of Washington's total employment, respectively.
- An estimated 36,328 people were employed in Walla Walla County, and 132,124 were employed in Yakima County in 2020. Walla Walla and Yakima Counties' employed population in 2020 consisted of 1 percent and 3 percent of the State of Washington's total employment, respectively.
- In 2020, farm employment accounted for 2 percent of the state's labor market. Farm employment in the study area counties ranged between 5 and 15 percent. In Benton County, farm employment accounts for approximately 5 percent of the county's workforce.
- In 2020, the private sector employed more people than the public sector in the State of Washington and the study area. The following summarizes employment by the economic sectors that employ the greatest number of residents within the study area:

- The two largest sectors for employment in Washington were government and health care and social assistance. Government sector jobs represented 15 percent of Washington's workforce and health care, and social assistance represented 11 percent.
- Government sector represented between 11 and 17 percent of the workforce in Benton, Franklin, Walla Walla, and Yakima Counties in 2020.
- Similar to the State of Washington, the health care and social assistance sector was the second largest employer in Benton and Yakima Counties. Health care and social assistance represented 14 percent of employment within Benton and Yakima Counties.
- In Franklin County, retail trade at 10 percent of work was the second largest employer.

3.16.1.8 Housing

The U.S. Census Bureau defines a housing unit as a house, apartment, mobile home or trailer, group of rooms, or single room occupied or intended to be occupied as separate living quarters. **Table 3.16-8** summarizes housing resources for the State of Washington and study area. The data presented in this table are annual estimates prepared by the U.S. Census Bureau from the 2020 Decennial Census and 2019 American Community Survey (ACS) 5-Year Estimate.

Table 3.16-8: Housing Characteristics for the Study Area

Geographic Area	Total Housing Units[(a)]	Occupied Housing Units[(a)]	Vacant Housing[(a)]	Median Home Value[(b)]	Median Rent Cost[(b)]
Benton County	80,076	76,369	3,707	$243,600	$974
Benton City	1,381	1,277	104	$164,000	Not Available
Kennewick	32,242	30,761	1,481	$223,000	$922
Prosser	2,346	2,164	182	$200,400	$835
Richland	25,524	24,327	1,197	$267,200	$1,087
West Richland	5,773	5,628	145	$291,700	$1,280
Franklin County	29,740	28,748	992	$216,400	$913
Connell	1,021	958	63	$129,500	$903
Kahlotus	70	59	11	$122,900	Not Available
Mesa	119	105	14	$93,600	Not Available
Pasco	24,334	23,653	681	$210,000	$922
Walla Walla County	24,971	23,082	1,889	$231,500	$926
Yakima County	90,504	85,882	4,622	$183,800	$825
State of Washington	3,202,241	2,974,692	227,549	$351,300	$1,258

Notes:
(a) 2020 Decennial Census Data (U.S. Census Bureau 2021)
(b) ACS (2019) 5-Year Estimate Data (U.S. Census Bureau 2020b)
Not Available = Data not included in the 2019 American Community Survey 5-Year Estimate

The following describes the housing market for the four counties within the study area:

- **Benton County**: An estimated total of 3,707 units were vacant in Benton County in 2020. In 2019, the median home value in Benton County was $243,600. In 2019, there were 21,205 units with a home value less than $300,000 in Benton County. This includes 1,561 units with a value less than $100,000. In 2019, the median monthly rent in Benton County was $974. Median rent for renter-occupied units ranged from almost $835 in Kennewick to more than $1,280 in West Richland (U.S. Census Bureau 2021a, 2020b).
- **Franklin County**: An estimated total of 992 units were vacant in Franklin County in 2020. In 2019, the median home value in Franklin County was $216,400. In 2019, there were 9,692 units with a home value less than $300,000 in Franklin County. This includes 730 units with a value less than $100,000. In 2019, the median monthly rent in Franklin County was $913. For renter-occupied units, rent ranged from almost $903 in Connell to $922 in Pasco (U.S. Census Bureau 2021a, 2020b).
- **Walla Walla County**: An estimated total of 1,889 units were vacant in Walla Walla County in 2020. In 2019, the median home value in Walla Walla County was $231,500. In 2019, the median home value in Walla Walla County was $216,400. In 2019, there were 5,568 units with a home value less than $300,000 in Walla Walla County. This includes 485 units with a value less than $100,000. In 2019, the median monthly rent in Walla Walla County was $926 (U.S. Census Bureau 2020b, 2021a).
- **Yakima County**: An estimated total of 4,622 units were vacant in Yakima County in 2020. In 2019, the median home value in Yakima County was $183,800. In 2019, there were 25,589 units with a home value less than $300,000 in Yakima County. This includes 3,399 units with a value less than $100,000. In 2019, the median monthly rent in Yakima County was $825 (U.S. Census Bureau 2020b, 2021a).

Lawrence Berkeley National Laboratory completed a study in 2013 that used data collected from the sale of more than 50,000 homes in 27 counties, in nine different states. These homes were within 10 miles of wind projects, with 1,198 sales within one mile and 331 within half of a mile. This study also used data from before a project; the post-announcement, pre-construction period; and during operation. The study found no evidence of an effect on prices of homes in proximity to wind turbines (Hoen and Atkinson-Palombo 2016).

As presented in **Table 3.16-9**, the number of housing units has increased statewide and in Benton, Franklin, Walla Walla, and Yakima Counties from 2011 through 2021. By percent of total housing units, the counties of Walla Walla and Yakima experienced smaller gains in housing than Benton and Franklin Counties over this same period. Housing in Benton and Franklin Counties increased with net gains of approximately 11,647 units and 5,371 units, respectively. Within the Tri-Cities, the City of Pasco experienced the largest absolute increase over this period, with an additional 5,574 units. Similarly, Richland added approximately 4,673 housing units, while Kennewick added an estimated 3,923 units (OFM n.d.[f]).

Table 3.16-9: Number of Housing Units in the Study Area

Geographic Area	Total Housing Units 2011	Total Housing Units 2021	Percent Change	Annual Growth Rate
Benton County	69,739	81,386	16.7 %	1.7 %
Benton City	1,241	1,403	13.1 %	1.3 %
Kennewick	28,745	32,668	13.6 %	1.4 %
Prosser	2,134	2,375	11.3 %	1.1 %
Richland	21,232	25,905	22.0 %	2.2 %
West Richland	4,606	6,104	32.5 %	3.3 %
Franklin County	25,070	30,441	21.4 %	2.1 %

Geographic Area	Total Housing Units 2011	Total Housing Units 2021	Percent Change	Annual Growth Rate
Connell	931	1,031	10.7 %	1.1 %
Kahlotus	113	67	**-40.7 %**	**-4.1 %**
Mesa	128	120	**-6.3 %**	**-0.6 %**
Pasco	19,350	24,924	28.8 %	2.9 %
Walla Walla County	23,537	25,079	6.6 %	0.7 %
Yakima County	85,940	91,292	6.2 %	0.6 %
State of Washington	2,904,623	3,248,747	11.8 %	1.2 %

Source: OFM n.d.[f]
Notes: Postcensal data for each calendar year between the census and the current year are updated annually using information on the components of population change.
Bold = Loss of available housing

Temporary Housing

Table 3.16-10 summarizes the rental housing market for the study area. Viewed by county, these estimates suggest that rental housing is available throughout the study area. The U.S. Census Bureau's American Community Survey 2019 5-Year data indicates rental vacancy rates for the study area counties ranged from 2.7 percent in Franklin County to 6.1 percent in Walla Walla County. Vacancy rates within the Tri-Cities ranged from 2.3 percent in Pasco to 6.6 percent in Richland (U.S. Census Bureau 2020b).

Table 3.16-10: Rental Market Conditions for Study Area Counties

Geographic Area	Total Housing Units	Occupied and Paying Rent	Rental Vacancy Rates (%)	Seasonal, Recreational, or Occasional Use[(a)]
Benton County	76,241	21,360	5.1	378[(b)]
Benton City	Not Available	Not Available	Not Available	Not Available
Kennewick	31,093	10,363	5.2	Not Available
Prosser	2,635	930	0.0	Not Available
Richland	23,582	7,415	6.6	Not Available
West Richland	4,931	724	0.0	Not Available
Franklin County	28,063	8,021	2.7	Not Available
Connell	1,208	478	3.2	Not Available
Kahlotus	Not Available	Not Available	Not Available	Not Available
Mesa	Not Available	Not Available	Not Available	Not Available
Pasco	22,736	6,561	2.3	Not Available
Walla Walla County	24,745	7,645	**6.1**	Not Available
Yakima County	88,698	28,647	2.8	1,431[(b)]
State of Washington	3,106,528	1,014,639	3.6	91,657[(b)]

Source: U.S. Census Bureau 2020b; U.S. Census Bureau 2020c
Notes:
(a) Housing units for seasonal, recreational, or occasional use are generally considered to be vacation homes. They are not included in the estimated number of housing units available for rent.
(b) Data from American Community Survey 2019 1-Year Estimate (U.S. Census 2020c)
Not Available = Data not included in the 2019 American Community Survey 5-Year Estimate

Within the study area, temporary housing is also available in the form of hotel and motel rooms. Data compiled by travel research firm STR Global identified 44 hotels in the Tri-Cities area in November 2017, with a total of 4,063 guestrooms (ECONorthwest 2018). STR Global compiles data for commercial lodging establishments with at least 15 rooms. STR Global does not count single-room occupancy hotels, most bed and breakfast inns, or short-term rentals (e.g., Airbnb) (Horse Heaven Wind Farm, LLC 2022).

The Tri-Cities short-term rental market is seasonal, with monthly occupancy rates ranging from 42 percent in December to 77 percent in June. Occupancy in July and August averaged 69 percent (ECONorthwest 2018). Additionally, ECONorthwest states that the Tri-Cities attract a larger than average share of business and meeting visitors, which tends to support higher occupancy in the spring and fall (ECONorthwest 2018).

In addition to short-term rentals, temporary accommodations in the study area also include recreational vehicle (RV) parks and campsites. Within Benton and Franklin Counties, there are 12 RV parks and campgrounds, with a total of 1,320 RV spaces (Horse Heaven Wind Farm, LLC 2022).

3.16.1.9 Schools

Table 3.16-11 summarizes school district, enrollment, teacher data, and poverty data for the school districts within the study area. Student/teacher ratios, calculated by dividing the total number of students by the total number of full-time equivalent teachers, is a common measure used to assess the overall quality of a school. The statewide average ratio in Washington was 18.4 for the 2019 through 2020 school year. The national student/teacher ratio for the 2019 through 2020 school year was 15.9. The average student/teacher ratios for the study area counties for the 2021 through 2022 school year were similar to the state ratio from the 2019 through 2020 school year and ranged from 16.2 in Walla Walla County to 19.9 in Benton County (NCES n.d.[a], n.d.[b]).

Within the Study area, all but two school districts meet or potentially meet the poverty percentages (above 50%) necessary to receive extended benefits under the Learning Assistance Program (LAP). LAP is a state-funded program designed to enhance educational opportunities by providing supplemental instruction and services to assist students who are not yet meeting academic standards.

The racial and ethnic demographics of the school districts within the study area are shown in **Table 3.16-12**. Based on the State of Washington's student demographics data for the 2017 school year for the school districts within the study area, diverse student populations occur in each county with Hispanic and American Indian student populations often exceeding the state's average.

Table 3.16-11: School Districts within the Project Vicinity

Study Area County	School District	Total Number of Schools	Total Number of Students	Number of FTE Teachers	Student/ Teacher Ratio	2020/2021 Poverty Percentages[(a)]
Benton	Finley School District	3	880	51.60	17.05	70.75
Benton	Kennewick School District	32	18,714	956.02	19.57	55.68
Benton	Kiona-Benton City School District	4	1,417	78.20	18.12	71.97
Benton	Paterson School District	1	142	12.79	11.10	99.15
Benton	Prosser School District	6	2,493	118.20	21.09	69.57

Table 3.16-11: School Districts within the Project Vicinity

Study Area County	School District	Total Number of Schools	Total Number of Students	Number of FTE Teachers	Student/ Teacher Ratio	2020/2021 Poverty Percentages[a]
Benton	Richland School District	22	13,831	668.86	20.68	31.59
Franklin	Educational Service District 123	1	93	1.10	84.55	Data Not Available
Franklin	Kahlotus School District	1	36	8.72	4.13	72.73
Franklin	North Franklin School District	9	2,071	125.00	16.57	74.44
Franklin	Pasco School District	29	18,538	1,005.66	18.43	71.05
Franklin	Selah School District	10	3,748	224.68	16.68	50.55
Franklin	Star School District No. 054	1	13	2.00	6.50	Data Not Available
Walla Walla	College Place School District	4	1,570	92.51	16.97	55.37
Walla Walla	Columbia (Walla Walla) School District	3	705	47.80	14.75	55.07
Walla Walla	Dixie School District	1	14	2.00	7.00	Data Not Available
Walla Walla	Innovation Schools	1	0	0.00	0.00	Data Not Available
Walla Walla	Prescott School District	4	241	21.29	11.32	93.03
Walla Walla	Touchet School District	1	203	17.00	11.94	55.20
Walla Walla	Waitsburg School District	3	290	15.85	18.30	56.78
Walla Walla	Walla Walla Public Schools	16	5,568	335.00	16.62	56.39
Yakima	East Valley School District	5	3,271	180.97	18.07	57.77
Yakima	Educational Service District 105	1	48	5.00	9.60	Data Not Available
Yakima	Grandview School District	7	3,659	193.40	18.92	84.18
Yakima	Granger School District	3	1,488	83.62	17.79	89.85
Yakima	Highland School District	4	1,100	60.56	18.16	81.70
Yakima	Mabton School District	3	814	45.91	17.73	90.16
Yakima	Mount Adams School District	3	857[b]	57.27	14.96	95.50

Table 3.16-11: School Districts within the Project Vicinity

Study Area County	School District	Total Number of Schools	Total Number of Students	Number of FTE Teachers	Student/ Teacher Ratio	2020/2021 Poverty Percentages[(a)]
Yakima	Naches Valley School District	4	1,221	80.93	15.09	50.51
Yakima	Sunnyside School District	9	6,500	326.94	19.88	78.96
Yakima	Toppenish School District	9	4,276	197.78	21.62	80.35
Yakima	Union Gap School District	1	589	31.48	18.71	93.36
Yakima	Wapato School District	8	3,231	189.44	17.06	89.70
Yakima	West Valley School District	16	5,373	281.33	19.10	44.34
Yakima	Yakima School District	29	15,997	882.89	18.12	80.49
Yakima	Zillah School District	4	1,264	69.73	18.13	58.09

Source: NCES n.d.[b]; Washington Office of Superintendent of Public Education n.d.[a] (Poverty Percentage for 2020/2021 school year)
Note: District Details (2021–2022 school year; fiscal data from 2019–2020)
FTE = full-time equivalent
(a) = Poverty percentage is determined based on the October 1, 2019 CEDARS Free and Reduced Price Lunch (FRPL) data reporting as of March 31, 2020 for grades K-12.
(b) = In the absence of 2021-2022 school year data, 2020-2021 school year data has been substituted

Table 3.16-12: School Districts within the Project Vicinity

District Name	County	Total Students	% Hispanic / Latino of any race(s)	% American Indian / Alaskan Native	% Asian	% Black / African American	% Native Hawaiian / Other Pacific Islander	% White	% Two or More Races
Washington State	**Not Applicable**	**1,103,269**	**22.78**	**1.40**	**7.48**	**4.38**	**1.06**	**55.17**	**7.72**
Finley School District	Benton	931	44.68	0.21	0.43	0.54	0.00	50.48	3.65
Kennewick School District	Benton	18,172	35.79	0.36	1.98	2.29	0.18	55.66	3.74
Kiona-Benton City School District	Benton	1,446	40.94	0.35	0.35	0.35	0.00	55.67	2.35
Paterson School District	Benton	130	48.46	0.77	0.00	0.00	0.00	50.77	0.00
Prosser School District	Benton	2,785	63.16	0.47	1.36	0.54	0.11	32.32	2.05
Richland School District	Benton	13,552	17.10	0.46	3.70	2.05	0.19	72.23	4.27
Kahlotus School District	Franklin	51	15.69	0.00	0.00	0.00	0.00	76.47	7.84
North Franklin School District	Franklin	2,163	71.29	0.00	1.11	0.23	0.00	26.35	1.02
Pasco School District	Franklin	17,882	70.52	0.09	1.01	1.22	0.17	24.47	2.52
Selah School District	Franklin	3,716	28.18	0.75	0.46	0.51	0.08	67.22	2.53
Star School District No. 054	Franklin	15	60.00	0.00	0.00	0.00	0.00	40.00	0.00

Table 3.16-12: School Districts within the Project Vicinity

District Name	County	Total Students	% Hispanic / Latino of any race(s)	% American Indian / Alaskan Native	% Asian	% Black / African American	% Native Hawaiian / Other Pacific Islander	% White	% Two or More Races
College Place School District	Walla Walla	1,347	42.02	0.59	1.04	1.63	0.37	51.67	2.45
Columbia (Walla Walla) School District	Walla Walla	795	36.48	0.75	0.13	0.75	0.00	59.87	2.01
Dixie School District	Walla Walla	23	0.00	4.35	0.00	0.00	0.00	95.65	0.00
Prescott School District	Walla Walla	284	83.10	0.00	0.00	0.35	0.00	16.55	0.00
Touchet School District	Walla Walla	205	52.20	1.46	0.00	0.00	0.00	45.37	0.98
Waitsburg School District	Walla Walla	299	13.04	0.33	1.67	0.00	0.00	80.60	4.35
Walla Walla Public Schools	Walla Walla	5,888	37.94	0.46	1.24	0.90	0.19	55.83	3.45
East Valley School District (Yakima)	Yakima	3,226	47.49	0.90	0.77	0.90	0.09	47.95	1.89
Grandview School District	Yakima	3,728	92.19	0.05	0.05	0.08	0.00	7.32	0.30
Granger School District	Yakima	1,514	92.80	2.84	0.00	0.07	0.00	3.24	1.06
Highland School District	Yakima	1,167	75.15	0.17	0.17	0.34	0.00	22.37	1.80

Table 3.16-12: School Districts within the Project Vicinity

District Name	County	Total Students	% Hispanic / Latino of any race(s)	% American Indian / Alaskan Native	% Asian	% Black / African American	% Native Hawaiian / Other Pacific Islander	% White	% Two or More Races
Mabton School District	Yakima	910	97.47	0.33	0.00	0.00	0.00	2.09	0.00
Mount Adams School District	Yakima	934	37.47	53.00	0.00	0.00	0.00	4.50	5.03
Naches Valley School District	Yakima	1,353	21.80	0.44	0.37	0.52	0.00	73.61	3.25
Sunnyside School District	Yakima	6,834	92.01	0.03	0.04	0.07	0.00	6.88	0.97
Suquamish Tribal Education Department	Yakima	74	20.27	37.84	0.00	2.70	2.70	8.11	25.68
Toppenish School District	Yakima	4,188	77.41	12.30	0.31	0.17	0.00	9.00	0.81
Union Gap School District	Yakima	649	78.58	1.69	0.92	0.15	0.00	16.80	1.85
Valley School District	Yakima	610	12.30	0.98	3.77	1.15	0.16	74.26	7.21
West Valley School District	Yakima	29.68	0.93	2.43	0.72	0.21	62.65	3.38	29.68

Source: Washington Office of Superintendent of Public Education n.d.[b] (Oct. 1 County of Students by District with Grade, Race, Ethnicity and Gender 2016/2017 school year)

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4.0 CHAPTER 4 – ANALYSIS OF POTENTIAL IMPACTS AND MITIGATION

4.1 Introduction

This chapter presents the analysis of environmental impacts of the proposed Horse Heaven Wind Farm (Project, or Proposed Action) concerning the elements of the environment identified in Chapter 3 and identifies any required measures for mitigating those impacts.

Three stages would occur if the Project were authorized:

- Construction (including pre-construction)
- Operation
- Decommissioning

Components of the Proposed Action include one of two proposed turbine options (Turbine Option 1 or Turbine Option 2), up to three solar arrays, up to four substations, up to two battery energy storage systems (BESS),[1] and supporting infrastructure (roads, collector lines, transmission lines, etc.). The final number of turbines (no more than 244) and solar arrays would depend on the turbine models and solar modules selected and the final array layout.

Impacts are analyzed for each component during each of the three Project stages. The analysis is largely based on information provided in the Project's Application for Site Certification (ASC). Potential impacts related to the Project's components are generalized for the analysis of the Proposed Action when impacts are common within the Wind Energy Micrositing Corridor or Solar Siting Areas. The analysis of impacts is based on the laws and regulations current at the moment in time the ASC was submitted to the Washington Energy Facility Site Evaluation Council (EFSEC). Laws and regulations may be different at the time of decommissioning, and there is no way to anticipate if or how laws and regulations may change. EFSEC may request that additional studies be completed as a form of mitigation prior to decommissioning of the Project.

The Project may be built using a "phased approach," with distinct, fully functional portions of the Project potentially being built and implemented sequentially. Table 2-6 provides Horse Heaven Wind Farm, LLC's (Applicant's) example of a phased construction approach that is considered in the analysis of air, transportation, and socioeconomics in Chapters 3 and 4. For all other elements of the environment analyzed in this Environmental Impact Statement (EIS), the Project as a whole (reflecting the potential for all components to be built irrespective of the Applicant's phased construction approach) was analyzed.

4.1.1 Impacts

This chapter includes analyses of the environmental impacts that could occur if the Project were to be built, operated, and maintained for up to 35 years, and eventually decommissioned at the end of that lifespan. This timeframe is based on the 2022 ASC; however, the Project has the potential to operate longer if re-powered. This chapter also describes the potential environmental impacts associated with the No Action Alternative.

[1] The Applicant provided three locations for consideration of constructing the two BESS. An analysis for all the components and distinct parts as presented in Table 2.1-1 of the ASC has been completed where enough information was provided to do so..

"Impacts" are the effects or consequences of actions (Washington Administrative Code [WAC] 197-11-752) upon the environmental resources listed in Chapter 3. Two types of environmental impacts are described in this chapter:

- Direct impacts are the effects of an action (i.e., construction, operation and maintenance, or decommissioning) on a resource that occurs at the same time and place as the action. An example of a direct impact would be increased noise levels experienced by residents living near a construction site.
- Indirect impacts are similar to direct impacts in that they are caused by an action; however, they occur later in time or occur farther from the activity causing the impact. An example of an indirect impact would be a decline in numbers of a wildlife species due to fragmentation of that species' habitat by installation of fencing.

A third type of environmental impact, *cumulative impact*, occurs as a result of incremental direct and indirect impacts on resources from a project or plan, past and present actions, and other reasonably foreseeable developments (RFDs). Chapter 5 Cumulative Impacts of this EIS presents an analysis of cumulative impacts.

In accordance with the Washington State Environmental Policy Act (SEPA), this EIS weighs the likelihood of occurrence with the severity of an impact (WAC 197-11-794) and considers several factors when analyzing potential impacts. Factors included in the analysis and rating of impacts are described in **Table 4.1-1**.

Table 4.1-1: Impact Ratings Considered in the Analysis of Potential Impacts

Factor	Rating →			
Magnitude[a]	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Note:
[a] Magnitude ratings are further characterized and specific to each element of the environment in this chapter.

This EIS presents analysis of impacts for each of the three Project stages (construction, operation, and decommissioning) on the elements of the environment identified in Chapter 3. The direct and indirect impacts associated with the Proposed Action and under the No Action Alternative are described quantitatively in this EIS if sufficient data or information were provided in the ASC or subsequent data requests to do so. When detailed information was not available, and that information was not essential to determining the level of adverse environmental impacts, impacts are described qualitatively. For the decommissioning stage, which would occur over 35 years in the future, the exact impacts cannot be determined with certainty as conditions may change; for example, if more of the area is converted to residential use, then the impacts on land use could be different. The analysis uses the best available information to predict the significance of decommissioning-related impacts and uses the word “anticipate” to indicate that these are predictions rather than certainties. As mentioned above, EFSEC may request that additional studies be completed as a form of mitigation prior to decommissioning of the Project.

Impacts that are “similar” in nature but not exactly the same and are rated with the same magnitude, duration, likelihood, and spatial extent may be described as “similar” in this EIS. For example, impacts on wastewater during decommissioning of turbines under Turbine Option 1 would be similar to those described for construction of Turbine Option 1. The impact characterization presented herein considers the Applicant-committed measures and best management practices proposed in the ASC. The Applicant-committed measures and best management practices are intended to avoid or reduce potential impacts. Some Applicant-committed measures may be existing requirements in rule or law. Chapter 2 presents a list of the Applicant-committed measures.

A table (Summary of Potential Impacts) at the end of each resource section summarizes the adverse environmental impacts of the project as detailed in the preceding text. The magnitude ratings of negligible or low on their own indicate a finding of no significant adverse environmental impacts. The magnitude ratings of medium or high indicate the potential for significant adverse environmental impacts and warrant identification of additional mitigation to reduce the impact.

This EIS does not always recommend additional mitigation measures to further reduce impacts that are characterized as either medium or high magnitude. For those impacts, the Applicant commitment often represents the most effective means available of addressing adverse impacts to the affected resource. Furthermore, recommending additional measures would not be effective in reducing impacts beyond what the Applicant commitment would address.

The impact discussion is organized by various individual components (e.g., Turbine Option 1, Turbine Option 2, solar arrays). It also includes the comprehensive Project, which is the main consideration for understanding the impacts of the total proposal. This additional information about individual components can identify which, if any, components are contributing to a medium or high impact and will assist in further examination of possible options to mitigate the impact of those components and, ultimately, reduce the impact of the comprehensive proposal.

4.1.2 Mitigation

Mitigation measures can be implemented to avoid or reduce impacts associated with the construction, operation and maintenance, and decommissioning of the Project. According to SEPA (WAC 197-11-768), “mitigation” means the following:

- Avoiding the impact altogether by not taking a certain action or parts of an action

- Minimizing impact by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action
- Compensating for the impact by replacing, enhancing, or providing substitute resources or environments
- Monitoring the impact and taking appropriate corrective measures

Mitigation is identified in the EIS after considering the application of existing laws and rules and all applicant-identified commitments to the Project. In Chapter 4, it is referred to as “Recommended Mitigation.” These mitigation measures may be imposed by EFSEC pursuant to their authority under Revised Code of Washington 80.50 or through the use of their SEPA “substantive authority,” which provides the ability to condition or deny a proposal based on environmental impacts (WAC 197-11-660). Mitigation decisions are at the discretion of EFSEC. These may include, but not be limited to, mitigation identified in the EIS, other mitigation identified outside the EIS, or mitigation identified during adjudication.

The development of mitigation is ongoing during the SEPA process and can even continue after the publication of the EIS. That allows for mitigation to evolve and be refined as more information is collected during the whole EIS process, including the public comment period. Mitigation that may be applied to a project, should it be approved, does not have to be finalized during the SEPA process (e.g., development of mitigation by a Technical Advisory Committee formed for an approved project, or EFSEC imposed mitigation that is identified during adjudication). However, any mitigation that is applied to a project using SEPA substantive authority must meet the requirements of WAC 197-11-660 Substantive authority and mitigation. One requirement of WAC 197-11-660, section (1)(b), states: “Mitigation measures shall be related to specific adverse environmental impacts clearly identified in an environmental document on the proposal and shall be stated in writing by the decision maker.” In this case, the environmental document is the EIS and the decisionmaker is EFSEC.

Post-Adjudication Applicant Commitments

Prior to finalizing the EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns. As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the expected changes to the Project made in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, and information received from the Bonneville Power Administration (BPA). The Post-Adjudication Applicant Commitments were identified and finalized in the Applicant’s Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023).

4.2 Earth Resources

This section assesses potential impacts on earth resources within the Lease Boundary of the proposed Horse Heaven Wind Farm (Project, or Proposed Action) and Project vicinity. Additionally, this section evaluates the potential for geologic hazards originating within the Lease Boundary, Project vicinity, and Pacific Northwest region to impact the Project. The Project vicinity includes the areas 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. The affected environment for earth resources is presented in Section 3.2.

The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and shown in **Table 4.2-1** and acreage impacts presented in Section 2.0. Potential impacts are assessed for geology, soils, topography, and geologic hazards during Project construction, operation, and decommissioning.

Due to the Pacific Northwest's active geology, this section analyzes potential impacts on Project components from earthquakes, volcanic activity, landslides, tsunamis, and seiches.

Table 4.2-1: Impact Rating Table for Earth Resources from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

As identified in **Table 4.2-2**, the determination of impact magnitude is based on impacts on the nature and type of earth resources, impacts on earth resources, and compliance with state and county requirements.

Table 4.2-2: Criteria for Assessing Magnitude of Impacts on Earth Resources

Magnitude of Impacts	Description
Negligible	**Landscape character:** Landscape would appear unaltered. **Safety:** No change to existing.
Low	**Landscape character:** Landscape would be noticeably altered by changes to the surface of the earth but would not affect the structural integrity of the facilities. **Safety**: No anticipated change to existing.
Medium	**Landscape character:** Landscape would appear considerably altered and may affect the structural integrity of the facilities. **Safety**: A potential geologic hazard could result in an injury to an individual.
High	**Landscape character:** Landscape would appear severely altered and would affect the structural integrity of the facilities. **Safety**: A potential geologic hazard would result in a fatality to an individual.

4.2.1 Method of Analysis

For the assessment of impacts on earth resources from Project development, as well as impacts on the Project from geologic hazards, this section analyzes and compares the following documentation:

- Regulatory requirements and applicable codes and standards
- Horse Heaven Wind Farm, LLC's (Applicant) preliminary geotechnical study of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022)
- Geomorphological and geological characteristics of the Lease Boundary, Project vicinity, and Pacific Northwest (provided in Section 3.2)
- Benton County Natural Hazard Mitigation Plan (Benton County 2019)

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts related to earth resources are discussed in Section 2.1.3.1 and summarized below.

- A stabilized construction entrance/exit would be installed at locations where construction vehicles would access newly constructed roads and/or disturbed areas from paved roads. The stabilized construction entrance/exits would be inspected and maintained for the duration of the Project's lifespan.
- Clearing, excavation, and grading would be limited to those areas of the Project area absolutely necessary for construction of the Project. Areas outside the construction limits would be marked in the field, and equipment would not be allowed to enter these areas or disturb existing vegetation. To the extent

practicable, existing vegetation would be preserved. Where vegetation clearing is necessary, root systems would be conserved if possible.

- Vegetated areas that are disturbed or removed during construction would be restored as nearly as reasonably possible to pre-disturbance conditions.
- Excavated soil and rock from grading would be spread across the site to the natural grade and would be reseeded with native grasses to control erosion by water and wind.
- Silt fencing would be installed throughout the Project as a perimeter control and on the contour downgradient of excavations, the operation and maintenance facilities, and substations.
- Straw wattles would be used to decrease the velocity of sheet flow stormwater to prevent erosion. Wattles would be used along the downgradient edge of access roads adjacent to slopes or sensitive areas.
- Mulch would be used to immediately stabilize areas of soil disturbance, and during reseeding efforts.
- Jute matting, straw matting, or turf reinforcement matting would be used in conjunction with mulching to stabilize steep slopes that were exposed during access road installation.
- Soil binders and tackifiers would be used on exposed slopes to stabilize them until vegetation is established.
- Concrete chutes and trucks would be washed out in dedicated areas near the foundation construction locations. This would prevent concrete washout water from leaving a localized area. Soil excavated for the concrete washout area would be used as backfill for the completed footing to ensure that the surface soils maintain infiltration capacity.
- To facilitate installation of the wind turbine generator (turbine) footings, large excavations would be created. Soil from these excavations would be temporarily stockpiled and used as backfill for the completed footing. Silt fencing would be installed around the stockpile material as a perimeter control. Mulch or plastic sheeting would be used to cover the stockpiled material. Soils would be stockpiled and reused to prevent mixing of productive topsoil with deeper subsoils.
- After construction is completed, the site would be revegetated with an approved seed mix. When required, the seed would be applied in conjunction with mulch and/or stabilization matting to protect the seeds as the grass establishes. Revegetation would take place as soon as site conditions and weather allow following construction.
- If water crossings are needed, check dams and sediment traps would be used during construction of low-impact ford crossings or culvert installations. The check dams and sediment traps would minimize downstream sedimentation during construction of the stream crossings.
- To the extent practicable, construction activities would be scheduled in the dry season, when soils are less susceptible to compaction. Similarly, soil disturbance should be postponed when soils are excessively wet such as following a precipitation event.
- A Revegetation Plan was prepared by the Applicant (Appendix N, Horse Heaven Wind Farm, LLC 2022). The Revegetation Plan describes methods, success criteria, monitoring, and reporting for revegetation of

areas that would be temporarily disturbed during construction of the Project. A summary of key measures presented in the Revegetation Plan is provided below.

- Following construction, temporarily disturbed areas would be revegetated with native plant species, or non-invasive, non-persistent non-native plant species, as described in the Revegetation and Noxious Weed Management Plan. The plan calls for revegetation of agriculture land to occur in consultation with the landowner. Non-agricultural land would be seeded.
- The Applicant provided four example seed mixes containing native plants to the area, but the final composition of seed mixes would be determined based on preconstruction conditions and the availability of seed at the time of procurement. Two grassland seed mixes and two shrub-steppe seed mixes are proposed.
- Modified habitat would be replanted under the solar arrays as described in the Revegetation and Noxious Weed Management Plan. The seed mix identified for the modified habitat includes low-growing grasses and forbs: Sandberg bluegrass (*Poa secunda*), bottlebrush squirreltail (*Elymus elymoides*), prairie junegrass (*Koeleria macrantha*), milkvetch (*Astragalus sp.*), shaggy fleabane (*Erigeron pumilus*), and woolly plantain (*Plantago patagonica*).
- Revegetation monitoring would be conducted annually for a minimum of three years unless the landowner converted the areas (e.g., to agriculture land). Following annual monitoring, a monitoring report would be prepared that would include recommendations for remedial actions, if any. Monitoring reports would be submitted to the Washington Energy Facility Site Evaluation Council (EFSEC) within 60 days of the annual monitoring inspection.

The success criteria identify trigger points that would require modifications to the Revegetation Plan based on the monitoring reports. For example, should total coverage from seeding not meet the success criteria, the environmental monitor may indicate areas that require additional seeding or soil amendments. Remedial action would be identified where the success criteria are not met by Year 3 (for revegetated grassland habitat) or Year 5 (for revegetated shrub-steppe habitat), which may include reseeding, planting with container plants, additional weed control, and other measures as needed.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.2.2.8, Post-Adjudication Applicant Commitments.

4.2.1.1 Regulatory Requirements and Applicable Codes and Standards

The State of Washington Water Pollution Control Act requires compliance with the National Pollutant Discharge Elimination System (NPDES) through a Construction Stormwater General Permit. The NPDES Construction General Permit would require that the Applicant prepare a Stormwater Pollution Prevention Plan that specifies the activities and conditions at the site that could cause water pollution and the steps the contractor must take to prevent the discharge of any unpermitted pollution.

The State of Washington has adopted the 2018 International Building Code (IBC) standards with statewide amendments, effective February 1, 2021. The 2018 IBC provides design-level seismic parameters consistent with the requirements of the American Society of Civil Engineers Standard 7-16 for Minimum Design Loads and Associated Criteria for Buildings and Other Structures. The seismic design parameters are dependent on the structural requirements based on occupancy. The Project would include structures with occupancy categories

between I and IV.[2] The Applicant has identified seismic design parameters consistent with the Washington State building code (Horse Heaven Wind Farm, LLC 2022).

The Applicant's 2022 ASC indicates that a final site-specific geotechnical analysis would be reported in a subsequent geotechnical engineering report and geotechnical engineering risk assessment that meets the Benton County Critical Area requirements outlined in Benton County Code (BCC) 15.12.040 and 15.12.050. The Applicant's 2022 ASC states that the geotechnical risk assessment would be prepared by a qualified professional meeting the standards specified in BCC 15.02.070(57) (Horse Heaven Wind Farm, LLC 2022) per Washington Administrative Code (WAC) 463-62-020.

4.2.1.2 Preliminary Geotechnical Study

The Applicant's preliminary geotechnical investigation included the following elements:

- Geotechnical drilling with standard penetration testing at 17 locations within the Wind Energy Micrositing Corridor
  - Retrieval of 16 soil borings from potential wind turbine locations that were advanced to a target depth of 60 feet below ground surface (bgs)
  - Retrieval of one soil boring from a representative substation site that was advanced to a target depth of 50 feet bgs
- Collection of soil samples from all boring locations for laboratory testing

When a boring could not be advanced beyond 30 feet bgs due to hard ground conditions, the Applicant's team cored rock to depths of 5 to 20 feet below the depth of refusal. According to the preliminary geotechnical investigation report submitted with the 2022 ASC, rock coring was performed at two proposed wind turbine locations (Horse Heaven Wind Farm, LLC 2022).

4.2.1.3 Project Comparison to Existing County Natural Hazard Mitigation Planning Goals and Objectives

Table 4.2-3 presents a comparison of the Project with the relevant goals of the Benton County Natural Hazard Mitigation Plan.

[2] Each building and structure shall be assigned a structural occupancy category in accordance with the 2018 IBC. Category I represents buildings and other structures that represent a low hazard to human life in the event of failure; Category II represents building and other structures except those listed in Categories I, III, and IV; Category III represents buildings and other structures that represent a substantial hazard to human life in the event of failure; and Category IV represents buildings and other structures designed as essential facilities.

Table 4.2-3: Project Comparison with the Local Hazardous Area Program's Mitigation Goals and Objectives

Goal/Policy	Project Comparison
Goal 6: Local governments support hazard mitigation planning and support the implementation of the mitigation action items for their jurisdiction.	It is anticipated that the Project would be consistent with this hazard mitigation goal as the 2022 ASC states that final geotechnical analyses would be used to calculate the bearing capacity of the soils, conduct stability analyses, and provide engineering recommendations for construction of the structures in accordance with applicable state codes and standards.
Goal 6 Objective E: Support the location of new facilities outside of areas vulnerable to the impacts of natural hazards.	It is anticipated that the Project would be consistent with this hazard mitigation goal and objective as the 2022 ASC states that infrastructure would be sited to avoid steep slopes and areas of susceptible soils.
Goal 6 Objective F: Design facilities to withstand the impacts of a disaster when it is not feasible to relocate them.	It is anticipated that the Project would be consistent with this hazard mitigation goal and objective as the Applicant has committed to performing a geotechnical engineering risk assessment meeting the Benton County Critical Area requirements outlined in BCC 15.12.040 and 15.12.050 prior to construction.

Source: Benton County 2019
ASC = Application for Site Certification; BCC = Benton County Code; NPDES = National Pollutant Discharge Elimination System

4.2.2 Impacts of Proposed Action

The following sections assess potential impacts on earth resources, and impacts from geohazards, for each of the Project's components and the whole of the Project for each stage of the Project. Impacts on earth resources from construction, operation, and decommissioning could increase soil erosion or alter topography, and impacts from geological hazards on the Project's components could adversely affect the Project's viability.

Indirect impacts would not be anticipated because the Project is not expected to substantially induce regional growth to an extent that would significantly change off-site geology and soil resources or increase the likelihood that a geologic hazard event would occur.

4.2.2.1 Impacts on Earth Resources during Construction

The Project would permanently impact up to 6,869 acres and temporarily impact up to 2,957 additional acres,[3] during construction. Impacts on earth resources would be anticipated throughout the construction stage, due to altering or removing bedrock, causing soil erosion and compaction, and changing the topography within the Lease Boundary. The following are examples of construction activities that may impact earth resources:

- **Site Mobilization:** The movement of personal vehicles, work trucks, and heavy equipment to and from the Lease Boundary has the potential to track soil off site and increase soil compaction on site.
- **Clearing and Grubbing:** Clearing and grubbing soil and vegetation could lead to soil erosion as the substrate becomes exposed to wind and stormwater runoff. Additionally, clearing and grubbing cold cause soil compaction and changes to surface drainage patterns as infiltration rates decrease.
- **Earthwork:** Impacts on soils and topography would occur as the Project achieves the appropriate grades and subsurface conditions for the construction and installation of access roads, foundations, and temporary

[3] Overlapping permanent disturbance area is subtracted from temporary impact corridors/areas.

crane pads. Earthwork can lead to soil compaction, changes in surface drainage patterns, and fugitive dust as the soil becomes exposed to wind and stormwater runoff, and infiltration rates can decrease, causing a potential increase in localized erosion. The erosion impacts detailed in this section do not include natural erosion processes and are specifically related to impacts from the Project.

- **Installation of Foundations:** The installation of support pilings in bedrock, or other foundation construction techniques, may impact geology. For instance, if basalt is encountered, its removal would impact geological resources.

Turbine Option 1

Impacts on geology from the construction of turbines under Turbine Option 1 would be low, constant, probable, and limited to the specific turbine construction footprint. Specifically, adverse impacts on geology would occur from installing Turbine Option 1's deep foundations. The turbine foundation depths are expected to be between 9 and 12 feet bgs. The Applicant's preliminary geotechnical investigation study encountered basalt bedrock at six boring locations within the Lease Boundary. Basalt was encountered between 5 and 45 feet bgs, with one boring, WTG-235, encountering basalt at less than 12 feet bgs with basalt beginning at a depth of 5 feet bgs. Due to the potential for shallow bedrock to be present within the Lease Boundary, construction activities could impact geological resources. However, the basalt is expected to be at a sufficient depth that it is unlikely to be encountered during the construction of turbine foundations.

The severity of geology (bedrock) impact during construction is anticipated to be feasible and low because subsurface construction activities would rarely[4] be expected to encounter bedrock. If construction activities do encounter bedrock, the impacts, although constant, would be limited to the area of a specific wind turbine or building foundation. When construction workers encounter bedrock, the highly weathered basalt near the top of the rock surface is expected to be mechanically excavated. Blasting of bedrock may be required if less weathered basalt is encountered at shallow depths.

Impacts on soils resources from the construction of turbines under Turbine Option 1 would be low, short term, unavoidable, and confined within the Lease Boundary. These activities would likely include site clearing, excavation, and backfilling. The construction and erection of turbine tower foundations would disturb soil resources as the contractor excavates unsuitable material from the Project area. The disturbance to natural soil profiles could result in a temporary increase in soil erosion.

Impacts on topography from construction of turbines under Turbine Option 1 would be low, short term, unavoidable, and confined within the Lease Boundary. Construction activities that would impact topography include excavation, grading, and cut-and-fill-slope development. Limited grading and/or placement of additional fill may be needed to obtain necessary grades for access roads, building foundations, and leveling the ground. Surface disturbance from construction-related activities would impact topography around each turbine.

Turbine Option 2

Although slight decreases in the amount of disturbance to geology (bedrock), soil, and topography would be expected, as fewer turbines would be constructed under Turbine Option 2, construction-related impacts on earth resources under this option would be similar to those discussed for Turbine Option 1. Impacts on geology would

[4] One in 17 borings encountered bedrock at less than 12 feet bgs (within the expected turbine foundation depth) during preliminary geotechnical investigations (Westwood Professional Services 2020).

be low, constant, feasible, and limited to the installation footprint of the turbines. Impacts on soils resources from the construction of turbines under Turbine Option 1 would be low, short term, unavoidable, and confined within the Lease Boundary. Impacts on topography from construction of turbines under Turbine Option 1 would be low, short term, unavoidable, and confined within the Lease Boundary.

Solar Arrays

The impact on geology during solar array construction is anticipated to be low, constant, unlikely, and limited to the footprint of disturbance. Impacts on soil and topography from the construction of solar arrays would be similar to those discussed for construction of turbines under Turbine Option 1. Impacts on soils resources from the construction of solar arrays would be low, short term, unavoidable, and confined within the Lease Boundary. Impacts on topography from construction of solar arrays would be low, short term, unavoidable, and confined within the Lease Boundary.

Battery Energy Storage Systems

Battery energy storage systems (BESS) designs vary depending on manufacturer, technology, chemistry, etc. Battery production requires a large amount and wide range of raw materials, including metals and non-metals. The battery industry can generate considerable amounts of environmental pollutants during different processes such as mining, manufacturing, use, storage, treatment, disposal, and recycling (Dehghani-Sanij et al. 2019). The level of mining required depends on the recyclability of the type of BESS used. As more BESS are constructed and, in time, reach their end-of-life, it is important to note that many of the raw materials can currently be recycled and additional materials may be able to be recycled in the future with improvements to recycling methods. Although battery manufacturing is considered pollution-generating, advancements are being made within the industry to reduce its impact, increase its circularity, and ultimately demonstrate sustainable benefits over fossil fuel alternatives. The individual impacts for the manufacturing of the model of BESS required for this Project are not quantifiable and are not analyzed in this chapter. Additionally, it is expected that the manufacturing facilities would have their own environmental analysis.

Impacts on soils and topography from the construction of the BESS would be similar to those discussed for solar arrays: low, short term, unavoidable, and confined. Encountering bedrock is not expected; therefore, impacts on geology from the construction of BESS are low, constant, unlikely, and limited from the construction of the BESS.

Substations

Impacts on geology, soils, and topography from the construction of the substation(s) would be similar to those discussed for the BESS. Impacts on geology from the construction of substations are low, constant, unlikely, and limited to the disturbance footprint of the substations. Impacts on soils and topography from the construction of the substations would be low, short term, unavoidable, and confined.

Comprehensive Project

Impacts on geology, soils, and topography from construction of the Project as a whole are anticipated to be similar to those discussed for construction of turbines under Turbine Option 1: impacts on geology from the construction of the comprehensive Project are low, constant, feasible, and limited to the footprint of disturbance for the Project and impacts on soils and topography from the construction of the comprehensive Project would be low, short term, unavoidable, and confined.

4.2.2.2 Impacts on Earth Resources during Operations

The Project's operation stage would be associated with facility operations and maintenance. While most earthwork and subsurface foundation work would be completed during the construction stage, additional fill or aggregate materials may be needed to repair roads and underground utilities during the operation stage. The surface topography of the site would not be altered after the construction of the Project is complete.

Turbine Option 1

Operational activities associated with the Project include maintenance of the wind farm infrastructure and ongoing use of access roads and cleared areas. Impacts on geological resources under Turbine Option 1 operations would be negligible, temporary, feasible, and limited to the maintenance area. During operational procedures, impacts on the underlying basalt bedrock would be negligible because maintenance activities are not expected to include deep excavations that encounter geologic resources.

Operations under Turbine Option 1 would result in a low, temporary, feasible, limited impact on soil resources. It is anticipated that no new ground disturbance would occur during the Project's operation stage. During the operation stage, access roads and cleared areas could be susceptible to increased soil erosion from a lack of stabilizing vegetation or hard cover and prior disturbance of the local soil profile. Project operations would have a low impact on soil erosion because operations would be limited to gravel-surfaced areas, including the apron constructed around each turbine.

Operations under Turbine Option 1 would result in a negligible, temporary, unlikely, limited impact on the topography within the Lease Boundary. Impacts on topography during operational stages would be negligible, with an unlikely chance of occurring because facility operation would not require further excavation of existing ground surfaces or additional grading. Furthermore, it is anticipated that ground improvement techniques used during the construction stage would mitigate soils susceptible to erosion by improving their engineering performance and reducing their potential for settlement.

Turbine Option 2

Operations under Turbine Option 2 would result in impacts on geology, soils, and topography similar to those discussed for operation of turbines under Turbine Option 1.

Solar Arrays

Impacts on geology, soils, and topography from operation of the solar arrays would be similar to those discussed for operation of turbines under Turbine Option 1.

Battery Energy Storage Systems

Impacts on geology, soils, and topography from operation of the BESS would be similar to those discussed for operation of turbines under Turbine Option 1.

Substations

Impacts on geology, soils, and topography from the operation of substations would be similar to those discussed for operation of turbines under Turbine Option 1.

Comprehensive Project

Impacts on geology, soils, and topography from the operation of the Project as a whole would be similar to those discussed for operation of turbines under Turbine Option 1.

4.2.2.3 Impacts on Earth Resources during Decommissioning

The Applicant would decommission the Project following the anticipated Project life of up to 35 years, or a successful re-powering of the Project's components that could extend the length of the operation stage. The removal of aboveground Project infrastructure, and land restoration within the Project footprint, may present temporary or short term impacts on localized areas within the Lease Boundary.

Turbine Option 1

Impacts on geology from decommissioning of turbines under Turbine Option 1 would be low, temporary, probable, and limited to areas of previous development. The likelihood of a foundation removal encountering bedrock is low. If bedrock were to be impacted during the decommissioning stage, then it would likely have already been encountered during the construction stage.

The Applicant has stated in the 2022 ASC that upon decommissioning the Project, underground facilities would be removed to a minimum depth of 3 feet bgs. The severity of the impact on soils from the decommissioning under Turbine Option 1 is anticipated to be low, short term, unavoidable, and limited to areas of previous development. Decommissioning activities associated with the Project could impact and disturb the soil profile due to excavating foundations and utilities, removing unsealed areas, restoring the original ground profile, and rehabilitating vegetation.

Impacts on topography during the decommissioning stage would be low, short term, probable, and limited to areas of previous development as the Applicant restores the original topographic profile.

Turbine Option 2

Although slight decreases in the amount of disturbance to geology (bedrock), soil, and topography would be expected, as fewer turbines would be dismantled under Turbine Option 2, impacts on geology, soils, and topography from decommissioning under this option would be similar to those discussed for Turbine Option 1.

Solar Arrays

Impacts on geology, soils, and topography from the decommissioning of solar arrays would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

Battery Energy Storage Systems

Impacts on geology, soil, and topography from decommissioning of BESS would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

Substations

Impacts on geology, soils, and topography from decommissioning of substations would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

Comprehensive Project

Impacts on geology, soils, and topography from decommissioning of the Project as a whole would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

4.2.2.4 Impacts from Geological Hazards on Construction

Geological hazards may occur from sources within the Project Lease Boundary and regional sources. There are 812 acres of geologically hazardous areas (combined erosion hazard areas and steep slope areas) within the

Wind Energy Micrositing Corridor and 627 acres within the Solar Siting Areas (Horse Heaven Wind Farm, LLC 2022). The geologically hazardous areas are associated with erosion hazards and steeply sloped areas.

The 2022 ASC for the Project states that the final siting of Project components would be developed to avoid geological hazards. Therefore, no impacts are expected in areas identified as having combined erosion hazards and steep slopes, landslides, or liquefaction. The impacts discussed below are based on information from both site-specific and regional sources. Because the Project vicinity is in eastern Washington and surrounded by land, adverse impacts from tsunamis and seiches are not discussed below.

Turbine Option 1

Earthquakes: Several mapped fault systems are known to occur within the Project vicinity, and unmapped faults may occur within the Lease Boundary. The Applicant's 2022 ASC states that the proposed Wind Energy Micrositing Corridor is not located near known faults, and turbines would not be placed near faults. Accordingly, impacts from surface fault rupture under Turbine Option 1 are unknown because faults have not been mapped within the Lease Boundary, though no historic earthquake epicenters have historically occurred within the Lease Boundary to indicate the existence of a buried or unmapped fault.

Prolonged earthquake-induced ground shaking could cause minor damage to infrastructure if shaking has an intensity and duration that exceeds structural design levels. The severity of potential impacts from ground shaking is low but feasible, as Turbine Option 1 would meet Washington State building codes for seismic design. The hazard of ground shaking is not expected to impact construction because regional earthquakes that result in noticeable ground shaking are rare. Any impacts would be temporary across the Project and confined in their extent.

Liquefaction can increase the impact earthquakes have on structures and increase the chances of ground failure. Individually, the liquefaction hazard is considered negligible and unlikely. As shown in Figure 3.2-6, soils susceptible to liquefaction during strong ground shaking are located only within the drainage channels at the base of the valleys between the steep ridges. The Applicant's 2022 ASC states that Project components would not be developed in areas with soils susceptible to liquefaction.

Impacts related to earthquakes have been combined in **Table 4.2-4a** for the purposes of this analysis. The impact of earthquakes on construction of the Project under Turbine Option 1 is anticipated to be negligible, temporary, feasible, and confined to the Lease Boundary.

Landslide Hazards and Ground Instability: The impact of landslide hazards and ground instability on the construction of turbines under Turbine Option 1 would be low, temporary, unlikely, and limited. The Project site includes areas susceptible to landslides and bluff failures. Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.

There are 812 acres of geologically hazardous areas within the Wind Energy Micrositing Corridor and 627 acres within the Solar Siting Areas (Horse Heaven Wind Farm, LLC 2022). Existing steep and unstable slopes are at the greatest risk of developing landslides. Steep slopes (≥15 percent grade) with a high potential for erosion are located perpendicular to the north and south of the Horse Heaven ridgeline.

As illustrated in Figure 3.2-6, evidence of two landslides has been identified just within the site's northern edge. These deposits are not within the Wind Energy Micrositing Corridor. Additionally, the Applicant's 2022 ASC states that Project components would not be located in areas susceptible to landslides and ground instability. The

severity of potential impacts from landslides is anticipated to be low because Project facilities would be located to avoid steep slopes and drainage areas.

Volcanic Activity: The impact of volcanic activity on Project construction is anticipated to be negligible, temporary, unlikely, and confined to the Lease Boundary. Impacts on Project construction from volcanic activity are unlikely because of the distance between local volcanic centers and their frequency of occurrence. If a Cascade volcano were to erupt, volcanic ashfall, under favorable wind conditions, could reach the Lease Boundary. Hazards from ashfall to construction activities would include the following:

- Accumulation on structures
- Clogging of electronics, machinery, and filters
- Suspension of abrasive fine particles in air and water
- Accumulation on transportation routes and vegetation

The Cascades Volcano Observatory in western Washington maintains an extensive seismic network to monitor regional volcanoes. In an impending eruption, the observatory would issue widespread warnings. A large eruption resulting in ashfall and ash accumulation would create a temporary impact. It is anticipated that construction would resume once safe conditions allowed construction activities to proceed.

Turbine Option 2

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on construction of turbines under Turbine Option 2 would be similar to those discussed for construction of turbines under Turbine Option 1.

Solar Arrays

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on construction of the solar arrays would be similar to those discussed for construction of turbines under Turbine Option 1.

Battery Energy Storage Systems

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the construction of the BESS would be similar to those discussed for construction of turbines under Turbine Option 1.

Substations

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the construction of the substations are anticipated to be similar to those discussed for construction of turbines under Turbine Option 1.

Comprehensive Project

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the construction of the Project as a whole would be similar to those discussed for construction of turbines under Turbine Option 1.

4.2.2.5 Impacts from Geohazards on Operations

Turbine Option 1

Earthquakes: Several mapped fault systems are known to occur within the Project vicinity, and unmapped faults may occur within the Lease Boundary. The Applicant's 2022 ASC states that the Wind Energy Micrositing Corridor are not located near known faults, and the Applicant would not place turbines near any faults if they are detected

by subsequent geotechnical investigations. Because no historic earthquake epicenters are located within the Lease Boundary, the applicable severity determination is low.

Prolonged earthquake ground shaking could cause minor damage to infrastructure if the intensity and duration of the shaking exceed structural design levels. The severity of potential impacts from ground shaking is low but feasible. The hazard of ground shaking is not expected to impact operations as regional earthquakes rarely exhibit noticeable ground shaking. Additionally, the Applicant would construct turbines under Turbine Option 1 in accordance with Washington State building codes that address risks associated with seismicity. Any impacts would be temporary across the Project and confined in extent.

Liquefaction can increase the impact earthquakes have on structures and increase the chances of ground failure. Individually, the liquefaction hazard is considered negligible and unlikely. As shown in Figure 3.2-6, soils susceptible to liquefaction during strong ground shaking are located only within the drainage channels at the base of the valleys between the steep ridges. The Applicant's 2022 ASC states that Project components would not be developed in areas with soils susceptible to liquefaction.

Impacts related to earthquakes have been combined in **Table 4.2-4b** for the purposes of this analysis. The impact of earthquakes on operation of the Project under Turbine Option 1 is anticipated to be low, temporary, feasible, and confined to the Lease Boundary.

Landslides Hazards and Ground Instability: The Applicant's 2022 ASC states that Project components would not be located in areas susceptible to landslides and ground instability. Analysis found that the Project site includes areas susceptible to landslides and bluff failures. Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides. The impact of landslide hazards and ground instability on the operation of turbines under Turbine Option 1 would be low, temporary, unlikely, and limited to developed areas. The severity of potential impacts from landslides is considered low because Project facilities would be located to avoid steep slopes and drainage areas.

Volcanic Activity: The impact of volcanic activity on turbine operations under Turbine Option 1 is anticipated to be negligible, temporary, unlikely, and confined to the Lease Boundary. Impacts of volcanic activity on turbine operation are unlikely because of the distance between local volcanic centers and their frequency of occurrence. If a Cascade volcano were to erupt, volcanic ashfall combined with favorable wind conditions could reach the Lease Boundary. Hazards from ashfall to Project operations would include the following:

- Accumulation on structures
- Clogging of electronics, machinery, and filters
- Suspension of abrasive fine particles in air and water
- Accumulation on transportation routes and vegetation

The Cascades Volcano Observatory in western Washington maintains an extensive seismic network to monitor regional volcanoes. In an impending eruption, the observatory would issue widespread warnings. A large eruption resulting in ashfall and ash accumulation would create a temporary impact, possibly including cessation of operations and additional maintenance activities to restore proper function of equipment. It is anticipated that operations would resume once safe conditions allowed energy production to continue.

Turbine Option 2

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the operation of turbines under Turbine Option 2 would be similar to those discussed for operation of turbines under Turbine Option 1.

Solar Arrays

Impacts from landslide hazards, ground instability, and volcanic activity on the operation of solar arrays during construction, operation, and decommissioning would be low, temporary, unlikely, and limited to the solar arrays within the Lease Boundary. Impacts from earthquakes during construction, operation, and decommissioning would be low, temporary, unlikely, and confined to the solar arrays within the Lease Boundary. These environmental incidents, including ashfall and ash accumulation from volcanic activity, would have the potential to reduce the power generated by individual solar panels as well as damage the solar arrays' other components (GFZ 2017). It is assumed that these impacts would be temporary and that the Applicant would repair the solar panels and other components as soon as safe to do so.

Battery Energy Storage Systems

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the operation of BESS would be similar to those discussed for operation of turbines under Turbine Option 1.

Substations

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the operation of substations would be similar to those discussed for operation of turbines under Turbine Option 1.

Comprehensive Project

Impacts from on geohazards during operation of the Project as a whole would be low, temporary, unlikely, and limited to the individual structures and areas of disturbance within the Lease Boundary.

4.2.2.6 Impacts from Geohazards on Decommissioning

Following the operations stage of the Project, the Applicant would decommission the Project site. The removal of Project infrastructure, and land restoration within the Project footprint, may present temporary or short-term impacts on localized areas within the Lease Boundary.

Turbine Option 1

Earthquakes: Impacts from earthquakes on the decommissioning of turbines under Turbine Option 1 would be similar to those discussed for the construction of turbines under Turbine Option 1. The impact of earthquakes on the decommissioning of turbines under Turbine Option 1 is anticipated to be negligible, temporary, feasible, and confined to the Lease Boundary.

Landslide Hazards and Ground Instability: Impacts from landslide and ground instability on the decommissioning of turbines under Turbine Option 1 would be similar to those discussed for the construction of turbines under Turbine Option 1. The impact of landslide hazards and ground instability on the decommissioning of turbines under Turbine Option 1 is anticipated to be low, temporary, unlikely, and limited to developed areas.

Volcanic Activity: Impacts from volcanic activity on the decommissioning of turbines under Turbine Option 1 would be similar to those discussed for the construction of turbines under Turbine Option 1. The impact of volcanic activity on turbine decommissioning is anticipated to be negligible, temporary, unlikely, and confined.

Turbine Option 2

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the decommissioning of turbines under Turbine Option 2 would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

Solar Arrays

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the decommissioning of solar arrays would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

Battery Energy Storage Systems

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the decommissioning of BESS would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

Substations

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the decommissioning of substations would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

Comprehensive Project

Impacts from earthquakes, landslide hazards, ground instability, and volcanic activity on the decommissioning of the Project as a whole would be similar to those discussed for decommissioning of turbines under Turbine Option 1.

4.2.2.7 Recommended Mitigation Measures

This section describes measures that would reduce or compensate for impacts related to earth resources from construction, operation, and decommissioning of the Project. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action.

The intensity of adverse impacts on earth resources can be minimized or reduced through the implementation of mitigation measures, as described below. The Applicant would be responsible for implementing prescribed mitigation measures during the Project's preconstruction, construction, operation, and decommissioning stages. EFSEC has identified the following additional and modified mitigation measures for the Project to avoid and/or minimize potential impacts related to earth resources:

Geo-1:[5] Minimize soil disturbance activities with the potential for soil compaction when soils are saturated, such as following a major precipitation event (e.g., five-day antecedent rainfall of greater than 1.1 inches during mid-October to mid-April or greater than 2.1 inches during mid-April to mid-October. Direct construction away from areas with saturated soils and where drainage may concentrate until soils are no longer saturated, and limit vehicular traffic to established access roads. Where possible, leave existing vegetation root structure intact to enhance soil stability and infiltration capacity. Utilize best management practice (BMPs) such as low-ground-pressure and/or long-reach equipment, temporary matting and work pads, and localized engineered drainage improvements (e.g., interceptor drains, detention basins). Where soil compaction is observed to have occurred, decompact subsoils to a minimum depth of 18 inches or as identified in site reclamation plans and lease agreements.

[5] Geo-: Identifier of numbered mitigation item for Geology

Rationale: This mitigation measure limits erosion and disturbance of natural soil profiles.

In addition to the geology mitigation measure, the following measures developed for other chapters may be applicable to geology:

A-1:[6] Limit traffic speeds on unpaved areas to less than 15 miles per hour (mph), rather than the Applicant-proposed 25-mph limit.

Rationale: Access-road-related fugitive dust from construction vehicle traffic is the single largest source of emissions of particulate matter less than or equal to 10 microns in diameter (PM_{10}) and less than or equal to 2.5 microns in diameter ($PM_{2.5}$) from Project construction. Road-related fugitive dust emissions increase with increasing vehicle speed. Consequently, one of the BMPs for mitigation of road-related fugitive dust emissions is to limit vehicle speed. The Applicant has proposed to limit vehicle speed to 25 mph. A lower vehicle speed limit of 15 mph is feasible and would further reduce fugitive PM_{10} and $PM_{2.5}$ emissions.

W-2:[7] Minimize Work in Heavy Rain: Project construction and decommissioning would be minimized during rainy periods and heavy rain—in particular, work near ephemeral or intermittent streams.

Rationale: This mitigation measure addresses potential impacts of surface water and runoff and would minimize the risk of sediment release to surface water and wetlands.

Veg-7:[8] The Detailed Site Restoration Plan is a required, regulatory document. It would be prepared and submitted for approval by EFSEC for final revegetation prior to Project decommissioning for the temporary and permanent disturbance areas. It would be adapted to include modified habitat.

Rationale: The Detailed Site Restoration Plan would be a living document. It would include the methods, success criteria, monitoring, and reporting for revegetation at the end of the Project life. It would also include provisions for adaptive management and would be prepared based on any lessons learned from implementing the revegetation planned for the temporary disturbance from Project construction as described in Appendix N of the 2022 ASC (Appendix N, Horse Heave Wind Farm, LLC 2022).

LSU-4:[9] After construction is completed, the Applicant would restore all temporary disturbance areas to their preconstruction status.

Rationale: This mitigation measure would allow the areas of temporary disturbance within the Lease Boundary to return to their preconstruction agricultural production levels as soon as possible.

LSU-5: Prior to decommissioning, the Applicant would submit a Detailed Site Restoration Plan, per WAC 463-72-050, for restoring the site to its preconstruction character. The Applicant would be responsible for working with the landowner to return all agricultural land to its preconstruction status. If future site conditions or land ownership no longer allow for the land to be returned to agricultural production, the Applicant would submit a request to EFSEC for an alternative land use that would be in alignment with the Lease Boundary's preconstruction rural character and resource value. If the Detailed Site Restoration Plan

[6] A-: Identifier of numbered mitigation item for Air

[7] W-: Identifier of numbered mitigation item for Water

[8] Veg-: Identifier of numbered mitigation item for Vegetation

[9] LSU-: Identifier of numbered mitigation item for Land and Shoreline Use

requests an alternative land use, EFSEC may require that the Applicant provide additional mitigation to offset impacts from a permanent conversion of the land.

Rationale: This mitigation measure would assist in preventing conversion of a land use that is not in alignment with the Lease Boundary's current designation.

4.2.2.8 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include the undergrounding of transmission lines, where applicable[9]

- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[10]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains similar due to the turbines and other Project infrastructure that remains. The additional Applicant commitments identified above do not change the impact ratings previously provided for earth resources in the Draft EIS, and the impact ratings remain the same.

4.2.2.9 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves its context and intensity, which, in turn, depend on the magnitude and duration of the impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This Environmental Impact Statement weighs the potential impacts on earth resources that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.2-4a, 4.2-4b, and 4.2-4c**. As shown in the impact summary tables for earth resources, EFSEC has determined that no significant unavoidable adverse impacts would occur.

[10] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

Table 4.2-4a: Summary of Potential Impacts on Earth Resources during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Geology (Landscape)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Adverse impacts on geology could occur from the installation of deep turbine foundations.	Low	Constant	Feasible	Limited	No mitigation identified	None identified
Geology (Landscape)	Solar Arrays	Subsurface construction activities would rarely encounter bedrock.	Low	Constant	Unlikely	Limited	No mitigation identified	None identified
Geology (Landscape)	BESS Substations	Subsurface construction activities would not be expected to encounter bedrock.	Low	Constant	Unlikely	Limited	No mitigation identified	None identified
Soils (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The disturbance to natural soil profiles could result in a temporary increase in localized soil erosion. These activities are likely to include site clearing, excavation, and backfilling. The construction and erection of turbine tower foundations would disturb soil resources as the contractor excavates unsuitable material from the Project area.	Low	Short term	Unavoidable	Confined	**Geo-1:** Avoid construction during wet periods **A-1:** Limit traffic speeds **Veg-7:** Detailed Site Restoration Plan **W-2:** Minimize work in heavy rain **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Modified habitat included in the Detailed Site Restoration Plan	None identified
Topography (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction activities that would impact topography include excavation, grading, and cut-and-fill-slope development. Limited grading and/or placement of additional fill may be needed to obtain necessary grades for access roads, building foundations, and leveling the ground. Surface disturbance from construction-related activities would impact topography around each turbine.	Low	Short term	Unavoidable	Confined	**Geo-1:** Avoid construction during wet periods **A-1:** Limit traffic speeds **LSU-4:** Restoration of temporary disturbance to preconstruction status	None identified
Earthquakes (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Prolonged earthquake-induced ground shaking could cause minor damage to infrastructure if shaking has an intensity and duration that exceeds code-based structural seismic design levels.	Negligible	Temporary	Feasible	Confined	No mitigation identified	None identified

Table 4.2-4a: Summary of Potential Impacts on Earth Resources during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Landslide Hazards and Ground Instability (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The Project site includes areas susceptible to landslides and bluff failures. Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Geo-1:** Avoid construction during wet periods **Veg-7:** Detailed Site Restoration Plan **W-2:** Minimize work in heavy rain **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Modified habitat included in the Detailed Site Restoration Plan	None identified
Volcanic Activity (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Hazards from ashfall to construction activities would include the following: ▪ Accumulation of ash on structures ▪ Clogging of electronics, machinery, and filters ▪ Suspension of abrasive fine particles in air and water ▪ Accumulation of ash on transportation routes and vegetation	Negligible	Temporary	Unlikely	Confined	No mitigation identified	None identified

Notes:
[a] The impacts related to each component including “comprehensive Project” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = Battery energy storage system; EFSEC = Washington Energy Facility Siting Council.

Table 4.2-4b: Summary of Potential Impacts on Earth Resources during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Geology (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Impacts on the underlying basalt bedrock are not expected to include deep excavations that encounter geologic resources.	Negligible	Temporary	Feasible	Limited	No mitigation identified	None identified
Soils (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	It is anticipated that no new ground disturbance would occur. Access roads and cleared areas could be susceptible to increased soil erosion from a lack of stabilizing vegetation or hard cover and prior disturbance of the local soil profile. Soil erosion, because of operations, would be limited to gravel-surfaced areas, including the apron constructed around each turbine.	Low	Temporary	Feasible	Limited	**A-1:** Limit traffic speeds **Veg-7:** Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Modified habitat included in the Detailed Site Restoration Plan	None identified
Topography (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Facility operation would not require further excavation of existing ground surfaces or additional grading. Furthermore, it is anticipated that ground improvement techniques used during the construction stage would mitigate soils susceptible to erosion by improving their engineering performance and reducing their potential for settlement.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified
Earthquakes (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Prolonged earthquake ground shaking could cause minor damage to infrastructure if the intensity and duration of the shaking exceed code-based structural seismic design levels.	Low	Temporary	Feasible	Confined	No mitigation identified	None identified
Landslide Hazards and Ground Instability (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Veg-7:** Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Modified habitat included in the Detailed Site Restoration Plan	None identified

Table 4.2-4b: Summary of Potential Impacts on Earth Resources during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Volcanic Activity (Safety)	Turbine Option 1 Turbine Option 2 BESS Substations	Hazards from ashfall to operational activities would include the following: ▪ Accumulation of ash on structures ▪ Clogging of electronics, machinery, and filters ▪ Suspension of abrasive fine particles in air and water ▪ Accumulation of ash on transportation routes and vegetation	Negligible	Temporary	Unlikely	Confined	No mitigation identified	None identified
Volcanic Activity (Safety)	Solar Arrays **Comprehensive Project**	Ashfall and ash accumulation have the potential to reduce the photovoltaic-generated power of the solar panel as well as damage the solar arrays' components	Low	Temporary	Unlikely	Limited	No mitigation identified	None identified

Notes:
[a] The impacts related to each component including "comprehensive Project" were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.2-4c: Summary of Potential Impacts on Earth Resources during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Geology (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The likelihood of a foundation removal encountering bedrock is low. If bedrock were to be impacted during the decommissioning stage, then it would likely have already been encountered during the construction stage.	Low	Temporary	Probable	Limited	No mitigation identified	None identified
Soils (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning activities associated with the Project could impact and disturb the soil profile, due to excavating foundations and utilities, removing unsealed areas, restoring the original ground profile, and rehabilitating vegetation.	Low	Short Term	Unavoidable	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Modified habitat included in the Detailed Site Restoration Plan	None identified
Topography (Landscape)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The Applicant would restore the original topographic profile in areas of previous development.	Low	Short Term	Probable	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Modified habitat included in the Detailed Site Restoration Plan	None identified
Earthquakes (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Prolonged earthquake ground shaking could cause minor damage to infrastructure if the intensity and duration of the shaking exceed structural seismic design levels.	Negligible	Temporary	Feasible	Confined	No mitigation identified	None identified
Landslide Hazards and Ground Instability (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Existing ground instability, high rainfall rates, and strong earthquake shaking could cause landslides.	Low	Temporary	Unlikely	Limited	**Geo-1:** Avoid construction during wet periods **W-2:** Minimize work in heavy rain **Veg-7**: Detailed Site Restoration Plan **LSU-4:** Restoration of temporary disturbance to preconstruction status **LSU-5:** Modified habitat included in the Detailed Site Restoration Plan	None identified

Table 4.2-4c: Summary of Potential Impacts on Earth Resources during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Volcanic Activity (Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Hazards from ashfall to decommissioning activities would include the following: ▪ Accumulation of ash on structures ▪ Clogging of electronics, machinery, and filters ▪ Suspension of abrasive fine particles in air and water ▪ Accumulation of ash on transportation routes and vegetation	Negligible	Temporary	Unlikely	Confined	No mitigation identified	None identified

Notes:
[a] The impacts related to each component including “comprehensive Project” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

4.2.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to earth resources from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.3 Air Quality

This section describes the impacts on air quality that could result from the proposed Horse Heaven Wind Farm (Project, or Proposed Action) and under the No Action Alternative. Section 3.3 presents the affected environment for air quality. Potential impacts are assessed within the Lease Boundary and the Project vicinity, which includes the areas 4 miles south/southwest of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River.

Under the Washington State Environmental Policy Act, this Environmental Impact Statement (EIS) weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors when evaluating potential impacts (WAC 197-11-330 and WAC 197-11-794). These impacts were qualitatively assessed based on the method of analysis described in Section 4.3.1. Additionally, the qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and summarized in **Table 4.3-1**.

Table 4.3-1: Impact Rating Table for Air Quality from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

As identified in **Table 4.3-2**, the determination of impact magnitude is based on relative quantity of emissions; compatibility with applicable air quality rules, regulations, and plans; and potential exposure to sensitive receptors.[11]

Table 4.3-2: Criteria for Assessing Magnitude of Impacts on Air Resources

Magnitude of Impact	Description
Negligible	**Quantity of Emissions:** Project emissions are extremely small or negligible in comparison to background regional emissions. **Compatibility with Applicable Rules, Regulations, and Plans:** The Project would comply with all applicable rules, regulations, and plans. **Potential Exposure to Sensitive Receptors:** No sensitive receptors are located near the site.
Low	**Quantity of Emissions:** Project emissions are low in comparison to background regional emissions. **Compatibility with Applicable Rules, Regulations, and Plans:** The Project is expected to comply with all applicable rules, regulations, and plans. Additional agency approvals may be required. **Potential Exposure to Sensitive Receptors:** Few sensitive receptors are located in close proximity to the site.
Medium	**Quantity of Emissions:** Project emissions are similar to background regional emissions, or would raise background regional emissions but not to a level that could cause adverse effects on human health **Compatibility with Applicable Rules, Regulations, and Plans:** The Project is expected to comply with all applicable rules, regulations, and plans. Additional agency approvals and mitigation may be required. **Potential Exposure to Sensitive Receptors:** More than a few sensitive receptors are located in close proximity to the site.
High	**Quantity of Emissions:** Project emissions are high in comparison to background regional emissions or would raise background emissions above regional air quality levels that would cause adverse human health effects **Compatibility with Applicable Rules, Regulations, and Plans:** The Project may comply with all applicable rules, regulations, and plans, but some changes to rules, regulations, or plans may be required to establish conformity. Additional agency approvals and mitigation are required. **Potential Exposure to Sensitive Receptors:** Many sensitive receptors are located in close proximity to the site.

Background

Potential impacts from the Proposed Action were assessed for air quality during Project construction, operations and maintenance, and decommissioning. Potential impacts from the construction, operation, and decommissioning of the various Project components, turbines, substations, solar arrays, and battery energy storage system (BESS) are considered collectively in this assessment. The construction of these components is

[11] Sensitive receptors are locations where particularly vulnerable persons reside for extended periods and include: day care centers, schools, nursing homes, hospitals and other similar facilities.

expected to occur concurrently; the same is true for the operation and decommissioning stages. Accordingly, the air quality impacts during each stage would result collectively from all equipment.

This evaluation includes Project emissions estimates for the construction and operation stages, including construction phasing and traffic estimates, that are presented in the 2022 Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2022). Although not explicitly estimated, decommissioning-stage emissions are expected to be comparable to or less than construction-stage emissions. This assessment of impacts on air quality from Project development is based on the following:

- Construction and operations emission calculations prepared by Horse Heaven Wind Farm, LLC (Applicant) (Horse Heaven Wind Farm, LLC 2021)
- Supplemental emission calculations for fugitive dust during construction (**Appendix 4.3-1**)
- Supplemental emission calculations and air quality dispersion modeling prepared by the Applicant (Tetra Tech 2023)
- Review of background climate, air quality, and regional emissions inventory data

4.3.1 Method of Analysis

For point sources of pollution, such as a stationary facility with emissions from physical stacks, air quality impacts are typically assessed using air quality dispersion computer models approved by the U.S. Environmental Protection Agency (EPA). The computer models are used to predict ambient air quality concentrations resulting from operation of specific point sources. Modeled air quality concentration impacts are added to existing background air quality levels to determine a predicted ambient air quality level (modeled impact from source + background air quality = predicted ambient air quality). This predicted ambient air quality level can be compared with applicable National Ambient Air Quality Standards (NAAQS) to determine whether a proposed source is expected to cause a violation of any NAAQS. Commonly used EPA-approved air quality dispersion models are generally based on:

- Steady-state emissions parameters that do not fluctuate in location, velocity or flow rate, temperature, or emission rate
- Meteorological data sets, generally obtainable from monitoring stations representative of site conditions, that include key parameters affecting dispersion such as wind speed, wind direction, atmospheric stability, and ambient temperature

For the Project, expected emissions would primarily result either from mobile equipment or from fugitive dust from disturbed surfaces that are not steady-state. In addition, the Applicant has proposed the use of a portable concrete batch plant and backup diesel-fired generators at fixed locations during construction. The anticipated emissions for mobile equipment and fugitive dust would vary in location, emission rate, and emission release patterns over time. Although such variations could be addressed by computer dispersion modeling, the underlying assumptions regarding specific locations, emission rate variations, and emission release parameter variations would be so speculative that there is no “representative” set of assumptions that could be made without undermining the validity of the modeling. The known stationary sources of emissions (concrete batch plant and backup generators), however, can be modeled. This dispersion modeling of Project emissions was not performed for the Draft EIS because the Applicant had not confirmed whether these sources would be a part of Project construction. However, the Applicant has subsequently clarified that a concrete batch plant and backup

generators will be used to support construction. This section provides an updated air quality impact analysis based on computer dispersion modeling of concrete batch plant and emergency generator emissions, including a worst-case set of assumptions that captures the Applicant's desire for flexibility in overlapping construction activities.

Expected emissions from the mobile equipment and fugitive dust were calculated and compared to existing background regional (i.e., countywide) emissions using the most current regional emissions inventory. The Project was evaluated for conformity with applicable rules, regulations, and plans. The Project vicinity was also evaluated for the presence of nearby sensitive receptors. For the concrete batch plant and backup generators, dispersion modeling results were compared with representative background air quality conditions, as reported in Section 3.3, to determine whether the incremental addition of these sources to background air quality levels would potentially jeopardize attainment of ambient air quality standards.

The qualitative rating system described in Section 4.1 was used to assess the extent of air quality impacts according to the following attributes:

- Magnitude – Are quantities of emissions negligible, low, moderate, or high in comparison to existing background regional emissions? Are Project emissions compatible with applicable rules, regulations, and plans, or would additional agency approvals, mitigation or changes to applicable rules, regulations, or plans be needed to establish conformity? Are there sensitive receptors in close proximity that could be exposed to substantial quantities of air pollutants? Will modeled impacts of stationary sources associated with construction potentially jeopardize attainment of ambient air quality standards?
- Duration – Are emissions temporary, short term, long term, or constant, and would they continue beyond the life of the Project?
- Spatial Extent – Are emissions impacts confined to a very small area, do they extend throughout the entire Lease Boundary, do they extend beyond the Lease Boundary to nearby receptors, or are they regional in nature?
- Likelihood – Are emissions impacts unlikely, feasible, probable, or inevitable?

4.3.1.1 Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on air quality are discussed in Section 2.1.3 and summarized below.

- Construction and operations vehicles and equipment would comply with applicable state and federal emissions standards.
- Vehicles and equipment used during construction would be properly maintained to minimize exhaust emissions. Construction equipment that meets the EPA's Tier 4 emission standards for diesel engines would be used to the extent it is available (Horse Heaven Wind Farm, LLC 2021).
- Operational measures such as limiting engine idling time and shutting down equipment when not in use would be implemented.

- Watering or other fugitive dust abatement measures would be used as needed to control fugitive dust generated during construction.
- Construction materials that could be a source of fugitive dust would be covered when stored.
- Traffic speeds on unpaved roads would be limited to 25 miles per hour (mph) to minimize generation of fugitive dust.
- Truck beds would be covered when transporting dirt or soil.
- Construction workers would be encouraged to carpool to minimize construction-related traffic and associated emissions.
- Erosion-control measures would be implemented to limit deposition of silt to roadways and to minimize a vector for fugitive dust.
- Replanting or graveling disturbed areas would be conducted during and after construction to reduce windblown dust.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.3.2.6.

4.3.1.2 Example Phased Approach

This EIS considers the impact of the Project as a whole. To align with the impact rating system described by the Applicant's air quality impact analysis in the ASC, this evaluation of air quality analyzes potential impacts from the Proposed Action in the context of the Applicant's example of a phased approach to the expected overall approximately two-year construction schedule:

- Phase 1 construction could generate power via wind and solar energy. Phase 1 could also include a BESS capable of storing energy. Construction during Phase 1 would involve the use of a wide variety of mobile heavy construction equipment, vehicles and trucks, and fugitive dust associated with vehicular traffic and unpaved surfaces. In addition, Phase 1 would also include construction of the west substation and the use of a west laydown area. Emission sources at the west substation and west laydown would include a concrete batch plant with a maximum production rate of 330 tons per hour and 1,423 tons per day operating for four months to support production of concrete and the use of four diesel-fired backup power generators, three rated at 2,680 brake horsepower (bhp) and one rated at 670 bhp, each operating up to 500 hours (Tetra Tech 2023).
- Phase 2 construction is divided into Phase 2a and Phase 2b, summarized as follows:
  - Phase 2a could consist of the construction of both wind and solar facilities. The Applicant's Phase 2a scenario also includes the construction of a BESS.
  - Phase 2b could increase power generation via the construction of additional wind turbines, but construction would not include a BESS.

Phase 2 construction would similarly involve the use of a wide variety of mobile heavy construction equipment, vehicles and trucks and fugitive dust associated with vehicular traffic and unpaved surfaces. In addition, Phase 2 would also include construction of the east substation and the use of an east laydown area. Emission sources at

the east substation and east laydown would include a concrete batch plant with a maximum production rate of 330 tons per hour and 1,423 tons per day operating for four months to support production of concrete and the use of four diesel-fired backup power generators, three rated at 2,680 bhp and one rated at 670 bhp, each operating up to 500 hours (Tetra Tech 2023).

Chapter 2 contains more information on the Applicant's example of a phased approach to construction. The construction schedule, including the phasing of specific elements of the Project, could alter the details of the analysis. Any construction traffic volume increases from combining the two phases are expected to be minimal and unlikely to affect the analysis for the phased approach.

Emissions during construction of Phase 1, Phase 2a, and Phase 2b were not anticipated to occur coincidentally and are reported separately, according to information supplied by the Applicant. Emission calculations for each phase of the Project were provided by the Applicant in a supplemental data response (Horse Heaven Wind Farm, LLC 2021) and are presented in **Table 4.3-3**, below. This table presents the total emissions associated with on-road and off-road fuel-burning equipment to be used during construction and operation, as well as estimated fugitive dust emissions during construction by overall Project phase. The Applicant did not provide estimates for emissions during Project decommissioning. It can be assumed that the decommissioning activities would be similar and no more intensive than the construction activities. Accordingly, the associated emissions during decommissioning would be no more than those presented for the construction activities. Emissions are also presented by calendar year during construction and operation of the Project. These emission estimates incorporate Applicant-proposed emission control measures presented in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022; Tetra Tech 2023).

Calculation details for each Project phase are provided in **Appendix 4.3-1** and **Appendix 4.3-2** and include:

- A listing of anticipated air-emitting equipment for each phase
- The assumed equipment ratings, load factors, and references for the emissions factors[12]
- Details regarding the emission sources associated with operation of the concrete batch plant and backup generators
- Other assumptions used in the calculations

The emissions factors used are presented in **Appendix 4.3-1** and **Appendix 4.3-2**. These appendices also provide construction schedules for each phase of the Project, as well as the types and quantities of equipment and other assumptions used for each specific task during construction, operation, and maintenance of the Project.

Emissions factors for non-road[13] mobile equipment to be used during construction of the Project were calculated using the current version of the EPA's Motor Vehicle Emission Simulator (MOVES) emissions factor modeling

[12] Emissions factors (EFs) are standardized factors developed for calculating emissions from different air pollutant-emitting activities. EFs are generally expressed in mass per unit of activity. Emissions are calculated by multiplying EF x units of activity. For example, motor vehicle EFs are frequently expressed in terms of gm/vehicle mile travelled (VMT). In this case VMT is the unit of activity. Total motor vehicle emissions are then calculated as follows: motor vehicle emissions (grams) = EF (grams/VMT) x VMT. EFs vary by pollutant and source category. In some instances, EFs vary by equipment ratings, load factors and other parameters. More specifics are contained in EPA (2016, 2021a, 2021b).

[13] The term "non-road" applies to any source equipment that is not a motor vehicle routinely operated on a highway or road. Examples of non-road mobile equipment relevant to the Project include graders, scrapers, excavators, trenchers, and many other types of off-highway mobile construction equipment. The term also includes airplanes, trains, ships, and other ocean or water-going vessels. The terms "non-road" and "off-road" are often used synonymously and interchangeably.

system (EPA 2021a). The current version of MOVES, known as MOVES3, is the EPA's accepted model for estimating mobile source emissions for both federal and state environmental assessments. MOVES analyses were conducted using default input files for Benton County provided by the Washington State Department of Ecology (Ecology) (Horse Heaven, LLC 2021). The analyses were conducted for two separate calendar years, 2023 and 2024, and were used to estimate emissions from the corresponding phase of construction occurring in each year[14] (Horse Heaven Wind Farm, LLC 2021).

Emissions for on-road mobile equipment to be used during construction, operation, and maintenance of the Project, including supply trucks, delivery vehicles, and worker commute vehicles, were also calculated using MOVES3 and the default input files for Benton County. The analyses were conducted for calendar years 2023 and 2024 and applied to the corresponding phase of construction occurring in each calendar year. The 2024 emissions factors were also used to estimate on-road vehicle emissions during operation and maintenance activities for calendar years 2025 and later (Horse Heaven Wind Farm, LLC 2021).

[14] 2023 emissions factors were used for Phase 1 construction emissions, and 2024 emissions factors were used for both Phase 2a and Phase 2b construction emissions.

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Table 4.3-3: Summary of Air Quality Emissions, tons per year

Emission Totals by Phase[a]	VOCs	NO_X	CO	PM_{10}	$PM_{2.5}$	SO_2	HAP	CO_2	CH_4	N_2O	CO_2e
Phase 1 Wind	3.03	24.66	17.83	1.34	1.29	0.03	0.40	9,094	0.29	0.17	9,150.72
Phase 1 Solar	2.12	14.67	9.94	1.15	1.11	0.02	0.39	4,794	0.16	0.10	4,827.91
Phase 1 Battery	0.27	2.29	1.42	0.12	0.11	0.00	0.03	806	0.03	0.01	811.34
Fugitive Dust	-	-	-	1,163.38	125.22	-	-	-	-	-	-
East Substation and Laydown Area	1.54	52.26	11.98	1.53	1.53	0.03	0.398	955.75	0.97	2.31	1,668.52
Phase 1 Total	**6.96**	**93.88**	**41.17**	**1,167.52**	**129.26**	**0.08**	**1.22**	**15,649.75**	**1.45**	**2.59**	**16,458.49**
Phase 2a Wind	3.47	29.48	18.44	1.68	1.62	0.04	0.53	11,199	0.33	0.22	11,272.03
Phase 2a Solar	1.92	13.23	8.75	1.05	1.01	0.01	0.36	4,547	0.15	0.10	4,579.36
Phase 2a Battery	0.25	2.12	1.27	0.11	0.11	0.00	0.03	797	0.03	0.01	802.14
Fugitive Dust	-	-	-	957.79	103.05	-	-	-	-	-	-
West Substation	1.42	48.24	11.06	1.41	1.41	0.02	0.37	764.49	0.78	1.85	1,334.62
West Laydown Area	0.92	4.02	0.92	0.12	0.12	0.00	0.31	191.26	0.19	0.46	33.90
Phase 2a Total	**7.98**	**97.09**	**40.44**	**962.16**	**107.32**	**0.07**	**1.60**	**17,498.75**	**1.48**	**2.64**	**18,022.05**
Phase 2b Wind	4.27	36.73	22.69	2.04	1.96	0.04	0.64	13,858	0.41	0.27	13,947.13
Fugitive Dust	-	-	-	963.97	109.19	-	-	-	-	-	-
West Substation	1.42	48.24	11.06	1.41	1.41	0.02	0.37	764.49	0.78	1.85	1,334.62
West Laydown Area	0.92	4.02	0.92	0.12	0.12	0.00	0.31	191.26	0.19	0.46	33.90
Phase 2b Total	**6.61**	**88.99**	**34.67**	**967.54**	**112.68**	**0.06**	**1.32**	**14,813.75**	**1.38**	**2.58**	**15,315.65**
O&M[b]	0.07	0.28	0.62	N	N	N	N	134.31	1.22×10^{-2}	1.00×10^{-3}	134.91
O&M Total[b]	**0.07**	**0.28**	**0.62**	**N**	**N**	**N**	**N**	**134.31**	**1.22×10^{-2}**	**1.00×10^{-3}**	**134.91**

Source: Horse Heaven Wind Farm 2021 and Tetra Tech 2023

"-" = no emissions; CH_4 = methane; CO = carbon monoxide; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; HAP = hazardous air pollutants; N = negligible; N_2O = nitrous oxide; NO_X = oxides of nitrogen; O&M = operations and maintenance; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide; VOC = volatile organic compound

Table 4.3-3: Summary of Air Quality Emissions, tons per year

Emission Totals by Calendar Year[a]	**VOCs**	**NO_X**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**SO_2**	**HAP**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
2023 (Phase 1)	6.96	93.88	41.17	1,167.52	129.26	0.08	1.22	15,649.75	1.45	2.59	16,458.49
2024 (Maximum of Phase 2a or 2b)	7.98	97.09	40.44	967.54	112.68	0.07	1.6	17,498.8	1.48	2.64	18,022.1
2025 and onward (O&M)[b]	0.07	0.28	0.62	N	N	N	N	134.31	1.22×10^{-2}	1.00×10^{-3}	134.91

Sources: **Appendix 4.3-1** and **Appendix 4.3-2**

Notes:

[a] Emissions from individual phase components wind, solar, and battery include fuel-burning on-road and off-road equipment only. Fugitive dust emissions calculated and reported separately

[b] An N in this row denotes negligible emissions (less than 0.01 tons per year)

CH_4 = methane; CO = carbon monoxide; CO_2 = carbon dioxide; CO_2e = carbon dioxide equivalent; HAP = hazardous air pollutants; N_2O = nitrous oxide; NO_X = oxides of nitrogen; O&M = operations and maintenance; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide; VOC = volatile organic compound

For non-road equipment, MOVES3 produced emissions factors for volatile organic compounds (VOCs), oxides of nitrogen (NO_X), carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns in diameter ($PM_{2.5}$), sulfur dioxide (SO_2), carbon dioxide (CO_2), and methane (CH_4) in units of grams per horsepower-hour. Emissions of nitrous oxide (N_2O) from non-road equipment used a default emissions factor of 0.26 grams of N_2O per gallon of fuel combusted (EPA 2016a). Emissions factors for hazardous air pollutant (HAP) compounds from non-road diesel equipment were based on Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory, Volume I - Methodology, October 7, 2003 (ERG 2003). Total emissions of greenhouse gases (GHG) (measured in tons of CO_2 equivalents, or CO_2e) were calculated by applying the appropriate global warming potential (GWP) factors from Title 40, Code of Federal Regulations, Part 98 to the estimated emissions of CO_2, CH_4, and N_2O.[15] The GWP factors for these GHGs are 1 for CO_2, 25 for CH_4, and 298 for N_2O.

For on-road vehicles, MOVES3 produced emissions factors for VOCs, NO_X, CO, PM_{10}, $PM_{2.5}$, SO_2, CO_2, CH_4, N_2O, and CO_2e measured in grams per vehicle mile traveled. Emissions factors for HAP compounds from on-road vehicles were not available from the MOVES3 analyses. HAP emissions from on-road vehicles used during construction, operation, and maintenance of the Project are presumed to be negligible based on the relatively small total emissions of other pollutants contributed by Project-related on-road vehicles.

The fugitive dust emissions estimates reported in **Table 4.3-3**, above, include estimated contributions from exposed surface windblown dust, access road traffic, bulldozing activities, and grading activities that are separated, calculated, and presented as a “fugitive dust emissions” sum. Emissions factors were calculated using methods outlined in the EPA’s Compilation of Air Pollutant Emissions Factors (AP-42) (EPA 2021b). This reference has been published since 1972 as the primary compilation of the EPA’s emissions factor information. It contains emissions factors and process information for more than 200 air pollution source categories. A source category is a specific industry sector or group of similar emitting sources. The emissions factors have been developed and compiled from source test data, material balance studies, and engineering estimates. Since the 1995 fifth edition, the EPA has published many supplements and updates, the entirety of which are available online. **Appendix 4.3-1** includes further details regarding the specific equations and assumptions that were used in this analysis. Traffic count, mileage, exposed acreage, and duration were all derived from information reported in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) or the associated data responses (Horse Heaven Wind Farm, LLC 2021.)

Emissions of PM, PM_{10}, and $PM_{2.5}$ from the concrete batch plant individual source categories are estimated based on emission factors provided in the EPA’s AP-42 Compilation of Air Pollutant Emission Factors (EPA 2021b):

- Concrete batch plant – Sections 11.12, 11.19.2, and 13.2.4
- Paved roads – Section 13.2.1
- Unpaved surfaces – Section 13.2.2
- Wind erosion of active storage piles – Section 13.2.4

All backup generator emissions are estimated based on emission factors provided in the EPA’s AP-42 Compilation of Air Pollutant Emission Factors, Section 3.4 (Tetra Tech 2023), except GHG emission factors that

[15] GWP is a factor that relates the global warming potential of each substance to the mass of CO_2 that would create the equivalent amount of global warming. For example, CH_4 has 25 times the global warming potential of CO_2 and therefore has a GWP of 25. Since each GHG has its own unique GWP, standard convention is to multiply the mass emissions of each GHG by its respective GWP to determine and report total CO_2e from all GHG emissions rather than report the emission rates of GHGs with different GWPs separately.

are based on emission factors in Title 40 Code of Federal Regulations Part 98, Subpart C, Tables C-1 and C-2 and engine parameters provided by the Applicant.

4.3.2 Impacts of Proposed Action

4.3.2.1 Impacts during Construction

During construction, Project impacts would result from use of fuel-burning equipment to support construction, as well as fugitive dust associated with exposed surface windblown dust, access road traffic, bulldozing, and grading activities. In addition, a concrete batch plant would be used for four months during each phase of construction, and four diesel backup generators would operate to supply backup power for up to 500 hours in each phase. For each phase of the Project, these emissions are compared with the countywide emissions, as shown in **Table 4.3-4**. These emission estimates incorporate Applicant-proposed emission control measures presented in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022).

It should be noted that each Project phase includes several subcomponents—wind turbines, solar arrays, BESS, and associated substations. For the wind turbine portion of the Project, the Applicant is considering two wind turbine options. The information provided by the Applicant does not allow a detailed examination of the difference between Turbine Option 1 and Turbine Option 2. However, it is expected that air quality impacts would be similar for both options. **Table 4.3-3**, above, provides a breakdown of combustion equipment emissions for each of the Project subcomponents. It is not possible to provide a similar breakdown for fugitive emissions based on information contained in the ASC. Based on the relative emissions for each subcomponent, the largest contributor to overall construction emissions would be the wind turbines, followed by the solar arrays, followed by the BESS. However, since all subcomponents of the Project are expected to be constructed more or less concurrently, this analysis compares the totality of the Project's emissions to regional emissions. Emissions associated with each phase of construction differ slightly in amount but are of comparable magnitude in relation to emissions in the county (**Table 4.3-4**).

Table 4.3-4: Comparison of Project Construction Emissions to Countywide Emissions by Phase

Category	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOCs	CO_2e
Annual Countywide Emissions (tons per year)[(a)]	29,463	5,622	14,493	3,190	105.5	11,548	1.1×10^8 [(b)]
Phase 1 (tons per year)	**41.17**	**93.88**	**1,167.52**	**129.26**	**0.08**	**6.96**	**16,458.49**
% of County Annual Emissions	0.14%	1.67%	8.06%	4.05%	0.08%	0.06%	0.01%
Phase 2a (tons per year)	**40.44**	**97.09**	**962.16**	**107.32**	**0.07**	**7.98**	**18,022.05**
% of County Annual Emissions	0.14%	1.73%	6.64%	3.36%	0.07%	0.07%	0.02%
Phase 2b (tons per year)	**34.67**	**88.99**	**967.54**	**112.68**	**0.06**	**6.61**	**15,315.65**
% of County Annual Emissions	0.12%	1.58%	6.68%	3.53%	0.06%	0.06%	0.01%

Sources: Ecology 2020, n.d.; **Table 4.3-3**

Notes:

[(a)] Annual countywide emissions are for the year 2017 (the most recent year for which Ecology has published countywide)

[(b)] Ecology reported greenhouse gas emissions in CO_2e of 99.6 million metric tons for 2018 (the most recent year for which data are available) which is equivalent to 1.1×10^8 tons.

CO = carbon monoxide; CO_2e = carbon dioxide equivalent; Ecology = Washington State Department of Ecology; NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide; VOC = volatile organic compound

Emissions during Project construction are expected to comply with all applicable air quality rules, regulations, and plans.

Dispersion Modeling Assessment of Concrete Batch Plant and Stationary Backup Engines

The Applicant has proposed the use of a concrete batch plant and backup diesel generators to support the construction and commissioning process. In addition to incorporating the emissions from these sources in the overall comparison of Project emissions with countywide emissions, a dispersion modeling assessment has also been completed to assess the potential impacts on ambient air quality (Tetra Tech 2023) and is included as **Appendix 4.3-2**. The Applicant would be required to submit applications to the Washington Energy Facility Site Evaluation Council (EFSEC) for approval of these sources prior to implementation once final equipment has been selected. The Applicant's dispersion modeling assessment is represented as a worst-case scenario so that impacts from these sources are expected to be less than those presented in the assessment. In the unlikely event that the Applicant chooses to use equipment with a greater capacity or use rate than included in the air quality assessment, the Applicant would be required to submit a supplemental air quality assessment demonstrating compliance with applicable ambient air quality standards, as well as Benton Clean Air Agency (BCAA), Ecology, and EPA regulations. BCAA, serving as contractor to EFSEC (not as the permit-issuing agency), would likely review these applications and advise EFSEC regarding conformance with applicable air quality plans, policies, and regulations, as well as any recommended mitigation measures prior to receiving approval from EFSEC to include these additional Project components.

The ambient air quality dispersion modeling analysis for the Project was conducted using procedures specified in the EPA's Guideline on Air Quality Models (EPA 2017) and based on correspondence with Ecology. The dispersion modeling for the Project evaluated worst-case operating conditions to predict the appropriate maximum ambient air concentration for each pollutant and averaging period. The modeled cumulative impacts are added to ambient background concentrations, and the sum is compared to the NAAQS. The EPA establishes the NAAQS for the criteria air pollutants in accordance with the federal Clean Air Act (CAA) to protect public health and public welfare. Section 302(h) of the CAA defines "welfare" to include effects on soils, water, crops, wildlife, weather, economic values, and personal comfort and well-being, as well as damage to and deterioration of property. **Table 4.3-5** provides the NAAQS, as well as the modeling rank basis, as defined by the EPA, used for the assessment of the Project's compliance with the various criteria.

Table 4.3-5: National Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS ($\mu g/m^3$)	Rank for NAAQS Assessment
$PM_{2.5}$	24-hour	35	H8H (5-year Average)
	Annual	12	H1H (5-year Average)
PM_{10}	24-hour	150	H6H over 5 years
CO	1-hour	40,000	H2H
	8-hour	10,000	H2H
NO_2	1-hour	188	H8H (5-year Average)
	Annual	100	H1H

Table 4.3-5: National Ambient Air Quality Standards

Pollutant	Averaging Time	NAAQS ($\mu g/m^3$)	Rank for NAAQS Assessment
SO_2	3-hour	1,300	H2H (5-year Average)
	24-hour	365	H2H (5-year Average)
	Annual	80	H1H (5-year Average)

Source: Title 40 Code of Federal Regulations Part 50
$\mu g/m^3$ = micrograms per cubic meter; CO = carbon monoxide; H8H = highest eighth high; H1H = highest first high; H6H = highest sixth high; H2H = highest second high; NAAQS = National Ambient Air Quality Standards; NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide

Model Selection

The most recent version of the American Meteorological Society/EPA Regulatory Model (AERMOD) was used in this modeling analysis. AERMOD is the EPA's preferred near-field dispersion modeling system for a wide range of regulatory applications. The AERMOD modeling system includes four regulatory components: AERMOD, AERMAP (terrain processor), AERMET (meteorological processor), and BPIP Prime (building input processor) (EPA 2016b).

Meteorological Data For AERMOD

A five-year hourly meteorological data set for the period 2018 through 2022 was processed using AERMET to use for input to AERMOD based on recommendations from Ecology. The processed data consists of hourly surface observations of wind speed and direction collected at the Tri-Cities Airport in Pasco, Washington, and upper air data collected by the National Weather Service in Spokane, Washington. The meteorological data were collected approximately 15 miles northeast of the Lease Boundary. A wind rose plot depicting the frequencies of wind speed and direction for this meteorological data set is provided in Figure 3.3-3 in Section 3.3.

Emission Source and Other Input Parameters

Modeled emissions include the following sources:

- Backup diesel-fired power generators
- Concrete Batch Plant Affiliated Sources including:
  - Sand and Aggregate Delivery and Transfer
  - Cement Delivery and Weigh Hopper Loading
  - Truck Mix Loading
  - Paved Roads
  - Unpaved Roads
- Wind Erosion of Storage Areas
- Particulate matter emissions from all facility operations, including material storage and handling as well as combustion emissions from the concrete batch plant.

Emission sources and rates are described in detail in **Appendix 4.3-2**. For the purposes of PM_{10} and $PM_{2.5}$ dispersion modeling, the maximum 24-hour emission rates were modeled rather than the maximum 1-hour emission rates.

For CO and SO_2, the maximum 1-hour emission rates were modeled.

For NO_2, consistent with guidance on the modeling of intermittent sources (EPA 2011), annualized emission rates were modeled based on the assumption that each stationary engine would operate up to 500 hours per year (i.e., maximum 1-hour emission rate times 500/8760). NO_X emissions from the Project sources are released primarily in the form of nitric oxide (NO), and these emissions convert to NO_2 in the atmosphere. The NO_2 impact analysis utilized the EPA default guideline Tier 2 NO_X to NO_2 conversion rates (Ambient Ratio Method [ARM] and ARM2). The Tier 2 approaches assume that NO_X converts to NO_2 at a rate consistent with a conservative NO_2/NO_X ambient ratio.

The modeling did not impose an operational restriction on the time of day, days of the week, or months of the year. Even though emission sources will be phased and will operate intermittently, all sources were conservatively modeled as operating consistently over the entire year.

Emissions released through a stack or vent were modeled as point sources. Emissions from material handling operations (drop points) were modeled as volume sources. The haul roads were modeled as line sources. The front-end loader activity and the wind erosion emissions were modeled as area sources. Model input parameters for fugitive dust sources were based on guidance provided in the National Sand, Stone, and Gravel Association's Modeling Fugitive Dust Sources with AERMOD (NSSGA 2007). Detailed model inputs are provided in **Appendix 4.3-2**.

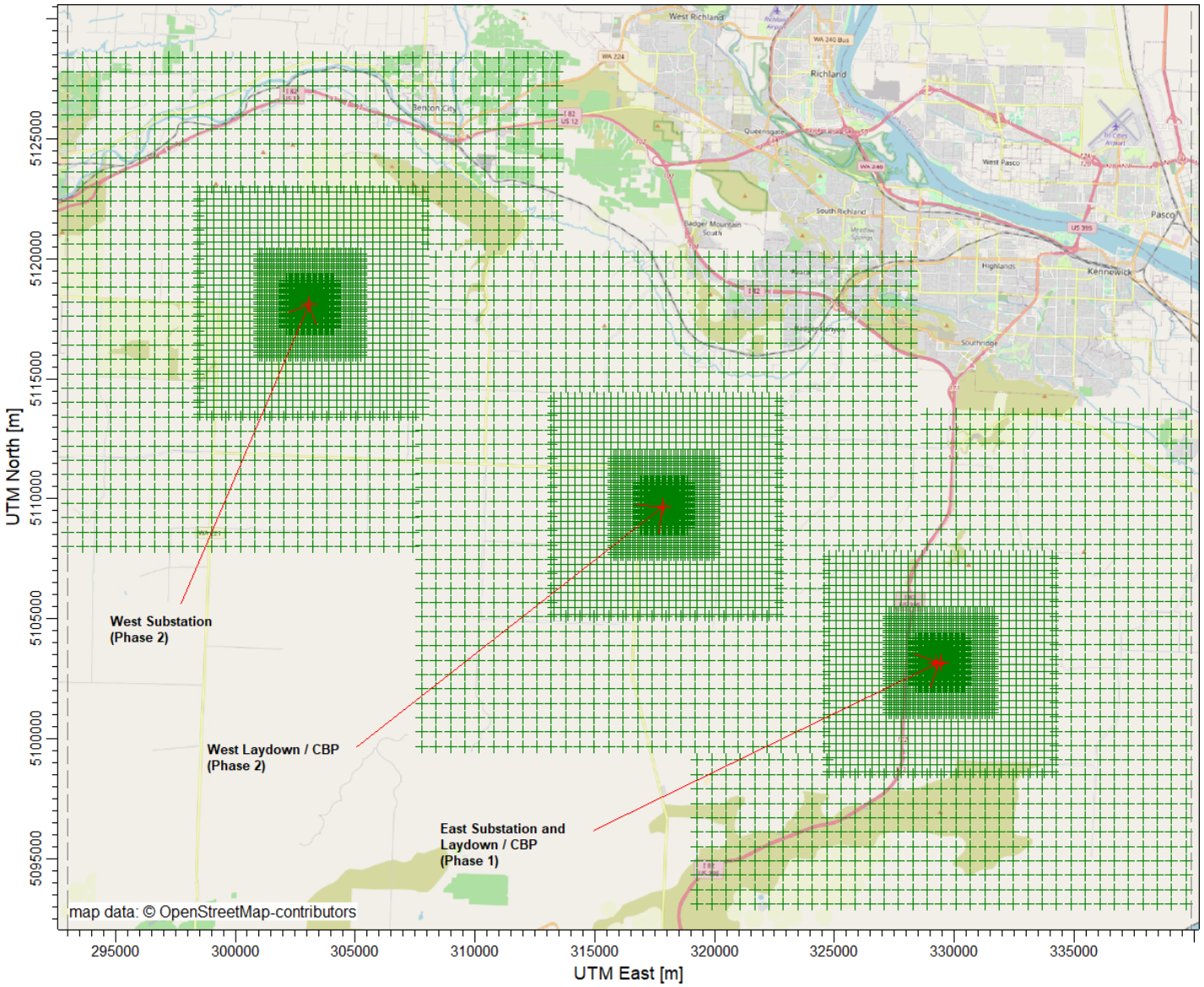
Source Configuration and Receptor Grids

As noted previously, the Project consists of two phases. Source groups were used to group activities related to each phase and to model associated emissions based on duration of each phase.

Discrete receptors are placed at intervals of 41 feet (12.5 meters) along the Project Lease Boundary fence line. The grid was extended out from the fence line at the following receptor intervals and distances:

- At 41-foot (12.5-meter) intervals from the Project site fence line to 492 feet (150 meters)
- At 82-foot (25-meter) intervals from 492 to 1,312 feet (150 to 400 meters)
- At 164-foot (50-meter) intervals from 1,312 to 2,953 feet (400 to 900 meters)
- At 328-foot (100-meter) intervals from 2,953 to 6,562 feet (900 to 2,000 meters)
- At 984-foot (300-meter) intervals from 6,562 to 14,764 feet (2,000 to 4,500 meters)
- At 1,969-foot (600-meter) intervals from 14,764 to 32,808 feet (4,500 to 10,000 meters)

The modeled receptor grid is shown in **Figure 4.3-1** and provides broad and adequate coverage of the Project vicinity. The dispersion model calculated air quality impacts at each receptor location (each cross-section within the grid). Figures 5-1a, 5-1b, and 5-1c of **Appendix 4.3-2** show the modeled source configurations.



Source: Tetra Tech 2023

Figure 4.3-1: Modeled Receptor Grid

Table 4.3-6 summarizes the results of the air quality modeling study performed for the concrete batch plant and emergency generator operations. Based on the modeling results, no violations of NAAQS are projected as a result of operation of these construction sources.

For PM_{10}, $PM_{2.5,}$ and NO_2, the pollutants with impacts closest to the NAAQS, figures are provided in **Appendix 4.3-2** to indicate the approximate areas with the highest air quality impacts for these pollutants. These figures demonstrate that the highest air quality impacts are concentrated close to the source of emissions and are not widespread.

Table 4.3-6: Maximum AERMOD-Predicted Concentrations and NAAQS Compliance Assessment

Pollutant	Averaging Period	Rank Basis	Predicted Project Concentration ($\mu g/m^3$)	Ambient Background ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS
$PM_{2.5}$	24-hour	H8H (5-year Average)	16.9	17.5	34	35
	Annual	H1H (5-year Average)	4.2	5.7	10	12
PM_{10}	24-Hour	H6H (5-year Duration)	59.8	71.6	131	150
CO	1-hour	H2H	624.9	1,386	2,011	40,000
	8-hour	H2H	445.3	962	1,407	10,000
NO_2	1-hour	H8H (5-year Average)	105.6	19.0	125	188
	Annual	H1H	6.9	3.8	11	100
SO_2	1-hour	H4H (5-year Average)	1.1	12.8	14	196
	3-hour	H2H	1.3	17.0	18	1,300
	24-hour	H2H	0.6	5.8	6	365
	Annual	H1H	0.07	1.0	1	80

Source: **Appendix 4.3-2** (Tetra Tech 2023)
$\mu g/m^3$ = micrograms per cubic meter; CO = carbon monoxide; H1H = highest first high; H2H = highest second high; H4H = highest fourth high; H6H = highest sixth high; H8H = highest eighth high; NAAQS = National Ambient Air Quality Standards; NO_X = oxides of nitrogen; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide

The results presented in **Table 4.3-4** and **Table 4.3-6** are discussed in the context of the impact rating system as follows:

- **Magnitude** – Quantities of emissions of CO, NO_X, SO_2, and VOCs, as well as GHG emissions (CO_2e), are considered negligible in the context of regional emissions, given that the expected emissions of each

pollutant are less than 1 percent of regional emissions. Emissions of PM_{10} and $PM_{2.5}$, on the other hand, would exceed 5 and 1 percent, respectively, of regional emissions and would be considered low. In addition, air quality modeling of stationary sources associated with Project construction indicate no exceedances of NAAQS. The Project's estimated emissions and associated air quality impacts are expected to comply with all applicable rules, regulations, and plans. No sensitive receptors are located in close proximity to the Project or will be exposed to air quality exceeding applicable NAAQS. As a result, the Project is expected to have a low-magnitude impact on air quality during construction.

- **Duration** – Construction emissions would occur only during construction and are considered short term. Once the construction period ends, emissions for all pollutants would drop to negligible quantities, as noted in Section 4.3.2.2. Since ambient air quality for CO, NO_X, and SO_2 are well below applicable NAAQS, short-term emissions are small in comparison to regional emissions, they are unlikely to contribute to levels that would result in a violation of an applicable NAAQS. Ozone, PM_{10}, and $PM_{2.5}$ ambient levels have less margin relative to the NAAQS and are therefore discussed further below with respect to duration.
  - **Ozone** – The area has exhibited periodic short-term (1-hour average) ozone levels above 70 parts per billion (ppb) in recent years, but there are no 1-hour ozone NAAQS. There have been no exceedances of the 8-hour average ozone NAAQS, but the area is currently considered unclassifiable.[16] Ozone tends to build up during high ambient temperatures (greater than 85 degrees Fahrenheit) and low to moderate (less than 6 mph) north to northeast winds, conditions that are infrequent based on the wind rose shown in Section 3.3 (WSU 2017). These conditions are expected to persist for only a limited portion of the construction period. Ozone would not be directly emitted by the Project, but rather potentially formed in the atmosphere over time from emissions of other precursor pollutants (predominantly NO_X and VOCs). As noted in the discussion of emissions quantities above, ozone precursor emissions reflect a very small portion (less than 1 percent) of area-wide emissions and are therefore unlikely to contribute measurably to lasting, elevated ozone levels that would jeopardize attainment status.
  - **PM_{10} and $PM_{2.5}$** – The nearest ambient air quality monitor experienced high PM_{10} in 2019, but these periods have been associated with extreme events (wildfires). This drove the three-year average above the NAAQS, but concentrations dropped in 2020 and the area continues to be considered in attainment. Twenty-four-hour average $PM_{2.5}$ levels at the nearest monitor have been observed to be above the standard in recent years but, when considered in the context of data collected at other regional monitors, continue to result in the area being considered in attainment.[17] Air quality background data for the period 2014–2017 has been recommended by Ecology for use in ambient air quality impact assessments (Tetra Tech 2023). Background data for this recommended evaluation period indicate ambient levels that are well below applicable NAAQS. Emissions during construction would be temporary and not continuous.

[16] An EPA designation of "attainment" signifies that the EPA has formally determined that ambient air quality in an area complies with the applicable NAAQS, meaning that ambient air quality is better than the standards established to protect public health and welfare. Conversely, an EPA designation of "nonattainment" signifies that the EPA has formally determined that ambient air quality in an area fails to meet the applicable NAAQS. Areas that are designated "unclassifiable" do not possess sufficient air quality data to support a formal designation. Benton County is designated "unclassifiable/attainment" for the 2008 8-hour ozone standard and "unclassifiable" for the lower 2015 8-hour ozone standard because there are insufficient monitoring data to support a formal "attainment" or "nonattainment" designation.

[17] Benton County PM_{10} and $PM_{2.5}$ ambient air quality is considered "in attainment" because the majority of ambient air quality data from the nearest air quality monitors (excepting poor air quality events associated with extreme wildfires events that have been excluded by EPA) are better than the applicable NAAQS. The area has been formally designated "attainment/unclassifiable" meaning it is considered in attainment with the NAAQS but is "unclassifiable" because there are insufficient monitoring data to support a formal "attainment" designation.

The Applicant has proposed a number of PM_{10} and $PM_{2.5}$ emissions controls that would further reduce already low emissions. Air quality modeling performed for stationary sources associated with construction indicates no NAAQS violations. As a result of the short duration and temporary nature of Project construction emissions, and the control measures proposed by the Applicant, these emissions are not expected to cause a violation of NAAQS or attainment status.

- **Likelihood** – The Applicant has committed to a variety of best management practices (BMPs) that would minimize the occurrence of dust, including periodically applying water to stabilize exposed surfaces and limiting vehicle speed to reduce surface disturbance. These BMPs should adequately control fugitive dust in most instances, but, under very high winds, some temporary fugitive dust emissions would be feasible. Emissions associated with all pollutants are considered probable, but, with the implementation of BMPs, no violations of ambient air quality standards are likely to occur.
- **Spatial Extent** – Construction-related gaseous emissions from combustion would largely impact areas within the Lease Boundary. Temporary visible fugitive dust tends to fall out rapidly and within a few 100 yards of the source. It consists primarily of particles that are larger than PM_{10} that do not influence regional air quality. However, PM_{10} and $PM_{2.5}$ components of fugitive dust (not generally visible to the naked eye) could remain suspended in the air for greater distances. Fugitive dust emissions are generally temporary or short-term events that do not usually persist at a sustained rate over extended periods of time, such as a full 24-hour period, the shortest averaging time for which ambient air quality standards have been established. Over a 24-hour period, PM_{10} and $PM_{2.5}$ emissions would likely be dispersed rapidly with distance from the source such that average ambient air quality impacts over a full 24-hour period at nearby residential receptors would be considered confined. The air quality impact assessment included in **Appendix 4.3-2** provides several figures demonstrating that the spatial extent of maximum impacts is confined to an area within several hundred yards of construction stationary sources. All other air pollutant impacts are considered confined.

Based on the above, impacts are considered low, short term, probable, and confined.

4.3.2.2 Impacts during Operation

During operation, the Project would have air quality impacts associated primarily with the use of air conditioning equipment (minor GHG emissions only), maintenance vehicles, and fugitive dust that could occur from the use of access roads. These emissions are summarized in **Table 4.3-7** in comparison to countywide emissions and incorporate Applicant-proposed emission control measures presented in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022). Emissions of each pollutant are extremely small, representing much less than 0.01 percent of regional emissions.

Table 4.3-7: Comparison of Project Operations and Maintenance Emissions and Countywide Emissions

Category	CO	NO_X	PM_{10}	$PM_{2.5}$	SO_2	VOCs	CO_2e
Countywide Emissions (tons per year)[(a)]	29,463	5,622	14,493	3,190	105.5	11,548	1.1E x 10^8 [(b)]
Project O&M (tons per year)	0.62	0.28	9.43E-03	8.65E-04	5.46E-04	7.00E-02	135
% of County Annual Emissions	0.002%	0.005%	0.0001%	0.00003%	0.001%	0.001%	0.0001%

Sources: Ecology 2020, n.d.; Horse Heaven Wind Farm, LLC 2021
Notes:
(a) Countywide emissions are for the year 2017 (the most recent year for which Ecology has published countywide)
(b) Ecology reported greenhouse gas emissions in CO_2e of 99.6 million metric tons for 2018 (the most recent year for which data are available) which is equivalent to 1.1 x 10^8 tons.
CO = carbon monoxide; CO_2e = carbon dioxide equivalent; Ecology = Washington State Department of Ecology; NO_X = oxides of nitrogen; O&M = operations and maintenance; PM_{10} = particulate matter less than 10 microns in diameter; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; SO_2 = sulfur dioxide; VOC = volatile organic compound

The results presented in **Table 4.37** are discussed in the context of the adopted impact rating system below:

- **Magnitude** – All air pollutant emissions combined would account for less than 0.01 percent of regional emissions, would be indistinguishable from background activities at these levels, and are considered negligible. The Project's estimated emissions are expected to comply with all applicable rules, regulations, and plans. No sensitive receptors are located in close proximity to the Project. As a result, the Project would be expected to have a negligible magnitude air quality impact during operation.
- **Duration** – Emissions would persist throughout the operation stage of the Project but would be short term in nature in that they would occur intermittently and only when maintenance vehicles are in use. Although the area has experienced brief periods of high PM_{10}, these periods have been associated with extreme events (wildfires) that are not expected to jeopardize attainment status. Similarly, $PM_{2.5}$ ambient air quality has been observed in multiple years above the 24-hour NAAQS at the nearest monitor, but when viewed in the context of other available regional monitoring, the area continues to be considered in attainment. Emissions during operations would be short term and not continuous. They would not be expected to result in a noticeable change in the area's ambient air quality or attainment status.
- **Likelihood** – The Applicant has committed to a variety of BMPs. These BMPs should adequately control fugitive dust in most instances, but under very high winds, some temporary fugitive dust emissions would be possible.
- **Spatial Extent** – Gaseous emissions from combustion of fuel in maintenance vehicles would be limited to access roads within the Lease Boundary.

Based on the above, impacts are considered negligible, short term, probable, and limited.

4.3.2.3 Impacts during Decommissioning

Due to the limited information available regarding decommissioning activities for the Project, emission rates during this period are not specifically calculated or modeled. The primary sources of emissions during decommissioning would be the transportation of workers and material to and from the site, use of off-road construction equipment to dismantle and remove foundations and equipment, and some surface disturbance (not as extensive as the grading activity required for construction) to support revegetation. It can therefore be

expected that impacts from emissions would be somewhat less than those calculated for construction, but greater than those calculated for operation and incorporate Applicant-proposed emission control measures presented in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022).

Based on the above, impacts during decommissioning are expected to be low, short term, probable, and confined.

4.3.2.4 Greenhouse Gas Emissions and Impact

GHG emissions are of potential concern because they have been widely associated with the increasingly observable adverse effects of global climate change. Emissions of GHGs associated with construction, operation, and decommissioning are expected to be negligible in comparison with countywide GHG emissions (see **Tables 4.3-4 and 4.3-7**). Although a life cycle assessment of GHGs has not been conducted for the Project, a substantial range of life cycle GHG emissions has been reported in the literature. In 2021, the U.S. Department of Energy National Renewable Energy Laboratory published a comprehensive review and comparison of life cycle analyses of GHG emissions from electric generation (NREL 2021). The evaluation indicates that median reported life cycle GHG emissions from wind and solar photovoltaic electric generation, 13 and 43 grams of carbon dioxide equivalent per kilowatt hour (g CO_2e/kWh), respectively, are more than an order of magnitude lower than median reported life cycle GHG emissions from natural gas, oil, or coal-based generation (486, 830 and 1001 g CO_2/kWh) and comparable to median life cycle emissions from nuclear and hydropower of 13 and 27 g CO_2e/kWh, respectively. Natural gas, nonhydroelectric renewable resources (mostly wind), nuclear energy, and coal generate almost all the rest of Washington's in-state electricity. Natural gas is the second-largest source of in-state net generation, and it fueled 12 percent of the state's total electricity generation in 2020 (EIA 2023). To the extent that the Project is expected to displace natural gas fired generation, it is expected to have a net positive effect in displacing GHG emissions with greater GHG footprints. As a result, the Project is expected to have a negligible to net positive impact on statewide and global GHG emissions.

4.3.2.5 Recommended Mitigation Measures

EFSEC has identified the following mitigation measures for the Project to avoid and/or minimize potential impacts on air quality:

A-1:[18] Limit traffic speeds on unpaved areas to less than 15 mph rather than the Applicant-proposed 25-mph limit. Access-road-related fugitive dust from construction vehicle traffic is the single largest source of PM_{10} and $PM_{2.5}$ emissions from Project construction.

Rationale: Road-related fugitive dust emissions increase with increasing vehicle speed. Consequently, one of the BMPs for mitigation of road-related fugitive dust emissions is to limit vehicle speed. The Applicant has proposed to limit vehicle speed to 25 mph. A lower vehicle speed limit of 15 mph is feasible and would further reduce fugitive PM_{10} and $PM_{2.5}$ emissions.

A-2: Applicant shall submit a Proof of Contact: Soil Destabilization Notification to EFSEC at least 90 days prior to commencement of construction.

Rationale: Fugitive dust emissions are a potential concern. This notification will facilitate EFSEC awareness of commencement construction so that compliance with implementation of all Applicant-proposed BMPs can be field validated.

[18] A-: Identifier of numbered mitigation item for Air

4.3.2.6 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[19]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary

[19] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the 2022 ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remains. The additional Applicant commitments identified above do not change the impact ratings previously provided for air quality in the Draft EIS, and impact ratings remain the same.

4.3.2.7 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn, depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This EIS weighs the impacts on air quality that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.3-8a, 4.3-8b, and 4.3-8c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to air quality.

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Table 4.3-8a: Summary of Potential Impacts on Air Resources during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Air Quality (Quantity of Emissions, Compatibility with Applicable Rules, Regulations, and Plans, Potential Exposure to Sensitive Receptors)	**Comprehensive Project**	Adverse impacts on air quality may occur from $PM_{2.5}$, PM_{10}, and fugitive dust during construction.	Low	Short Term	Probable	Confined	**A-1:** Limit speeds to less than 15 mph on dirt roads.	None identified

Notes:
[a] Impacts evaluated for the comprehensive Project since emissions from individual components within each phase will occur concurrently.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
EFSEC = Washington Energy Facility Site Evaluation Council; mph = miles per hour; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter

Table 4.3-8b: Summary of Potential Impacts on Air Resources during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Air Quality (Quantity of Emissions, Compatibility with Applicable Rules, Regulations, and Plans, Potential Exposure to Sensitive Receptors)	**Comprehensive Project**	Adverse impacts on air quality may result from operation and maintenance activities (primarily vehicular emissions)	Negligible	Short Term	Probable	Limited	**A-1:** Limit speeds to less than 15 mph on dirt roads.	None identified

Notes:
[a] Impacts evaluated for the comprehensive Project since emissions from individual components within each phase will occur concurrently.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
EFSEC = Washington Energy Facility Site Evaluation Council; mph = miles per hour

Table 4.3-8c: Summary of Potential Impacts on Air Resources during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Air Quality (Quantity of Emissions, Compatibility with Applicable Rules, Regulations, and Plans, Potential Exposure to Sensitive Receptors)	**Comprehensive Project**	Adverse impacts on air quality may occur during decommissioning from $PM_{2.5}$, PM_{10}, and fugitive dust	Low	Short Term	Probable	Confined	**A-1:** Limit speeds to less than 15 mph on dirt roads.	None identified

Notes:
[a] Impacts evaluated for the comprehensive Project since emissions from individual components within each phase will occur concurrently.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
EFSEC = Washington Energy Facility Site Evaluation Council; mph = miles per hour; $PM_{2.5}$ = particulate matter less than 2.5 microns in diameter; PM_{10} = particulate matter less than 10 microns in diameter

4.3.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to air quality from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.4 Water Resources

This section describes the potential impacts on water resources, identified in Section 3.4, that could result from the construction, operation, and decommissioning of the proposed Horse Heaven Wind Farm (Project, or Proposed Action), as well as from the No Action Alternative. This evaluation addresses the following water resources:

- Surface water and wetlands
- Runoff and absorption
- Floodplains
- Groundwater
- Public water supply

The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and shown in **Table 4.4-1**.

Table 4.4-1: Impact Rating Table for Water Resources from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

As identified in **Table 4.4-2**, the determination of impact magnitude is based on the Project's anticipated impacts on water resources, including impacts on surface water and wetlands, floodplains, groundwater, and public water supply. Impacts are quantified, where available, to assess their magnitude. Where impacts are not quantifiable, the magnitude of impact is determined based on change relative to existing conditions. The identified ratings have been included to further define magnitude in each case.

The magnitude of impacts for runoff and absorption was determined qualitatively using information on changes to impervious surfaces, mitigation measures, and the anticipated flow control of mitigation measures based on best management practices (BMPs) (Ecology 2019).

Table 4.4-2: Criteria for Assessing Magnitude of Impacts on Water Resources

Magnitude of Impacts	Description
Negligible	**Surface Water and Wetlands:** The Project would avoid impacts to surface water and wetlands or impacts would be indistinguishable from existing conditions. **Runoff/Absorption:** The Project would avoid impacts to runoff/absorption capacity or impacts would be indistinguishable from existing conditions. **Floodplains:** The Project would avoid impacts to floodplains or impacts would be indistinguishable from existing conditions. **Groundwater:** The Project would avoid impacts to groundwater or impacts would be indistinguishable from existing conditions. **Public Water Supply:** The Project would avoid impacts to public water supply or impacts would be indistinguishable from existing conditions.
Low	**Surface Water and Wetlands:** The Project would have minor impacts on surface water and wetlands. This may be temporary work within ephemeral streams. Impacts would be distinguishable from current conditions but are not anticipated to affect ecological function of surface water or wetlands. **Runoff/Absorption:** The Project would have minor impacts on runoff/absorption capacity. This may be a minor increase in impervious surface. Impacts would be distinguishable from current conditions but are not anticipated to affect ecological function. **Floodplains:** The Project would have minor impacts on floodplains. Impacts would be distinguishable from current conditions but are not anticipated to affect ecological function of floodplains. **Groundwater:** The Project would have minor impacts on groundwater. Impacts would be distinguishable from current conditions but are not anticipated to affect ecological function. **Public Water Supply:** The Project would have minor impacts on public water supply. Impacts would be distinguishable from current conditions but are not anticipated to affect public access.

Table 4.4-2: Criteria for Assessing Magnitude of Impacts on Water Resources

Magnitude of Impacts	Description
Medium	**Surface Water and Wetlands:** The Project would have moderate impacts on surface water and wetlands from disturbance. Ecological functions of surface water and wetlands are anticipated to be largely maintained but may be compromised at certain points during the year. **Runoff/Absorption:** The Project would have moderate impacts on runoff/absorption from disturbance. Ecological functions of runoff/absorption are anticipated to be largely maintained but may be compromised at certain points during the year. **Floodplains:** The Project would have moderate impacts on floodplain from disturbance. Ecological functions of floodplain are anticipated to be largely maintained but may be compromised at certain points during the year. **Groundwater:** The Project would have moderate impacts on groundwater from disturbance. Ecological functions of groundwater are anticipated to be largely maintained but may be compromised at certain points during the year. **Public Water Supply:** The Project would have moderate impacts on public water supply from disturbance. Public access to water supply is anticipated to be largely maintained but may be compromised at certain points during the year.
High	**Surface Water and Wetlands:** The Project would have major impacts on surface water and wetlands and would result in permanent alterations. Surface water and wetlands would be greatly altered from the current condition, and ecological functions provided by surface water and wetlands are anticipated to be lost or degraded. **Runoff/Absorption:** The Project would have major impacts on runoff/absorption and would result in permanent alterations. Runoff/absorption would be greatly altered from the current condition, and ecological functions are anticipated to be lost or degraded. **Floodplains:** The Project would have major impacts on floodplains and would result in permanent alterations. Floodplains would be greatly altered from the current condition, and ecological functions are anticipated to be lost or degraded. **Groundwater:** The Project would have major impacts on groundwater and would result in permanent alterations. Groundwater would be greatly altered from the current condition, and ecological functions are anticipated to be lost or degraded. **Public Water Supply:** The Project would have major impacts on public water supply and would result in permanent alterations. Public water supply would be greatly altered from the current condition and degraded.

4.4.1 Method of Analysis

The impacts on water resources from Project components and activities are assessed for the construction, operation, and decommissioning stages within the Lease Boundary. Laws and regulations for determining potential impacts on water resources are summarized in Section 3.4, Table 3.4-1.

Where available from the Application for Site Certification (ASC) for the Project, the potential for impacts on each of the water resources were quantified using measurable parameters. For example, impacts on surface water were determined for Project components by examining the number of streams impacted by temporary and permanent disturbance. However, for all impacts on water resources, a qualitative analysis was completed as described in Section 4.1.

Applicant Commitments

Horse Heaven Wind Farm, LLC (Applicant) has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC and taken into consideration in the characterization of potential impacts on water resources are discussed in Section 2.1.3 and summarized below (Horse Heaven Wind Farm, LLC 2022).

Applicant commitments are provided below and would be applied to the Project (Horse Heaven Wind Farm, LLC 2022).

- Disturbance would only occur within the Wind Energy Micrositing Corridors and Solar Siting Areas proposed in the ASC and would not total more than 2,957 acres of temporary disturbance and 6,869 acres of permanent disturbance. The Micrositing Corridors and Solar Siting Areas are larger than the Project's final footprint to allow minor rerouting to optimize the design and to avoid natural environmental resources that may be discovered during the final design and preconstruction process.
- The design of the Project components avoids all direct impacts on wetlands through refinements of the footprint design of the Micrositing Corridor and Solar Siting Areas. One wetland was identified within the Lease Boundary, located approximately 240 feet from the Micrositing Corridor. The wetland is rated as a Category IV Wetland, and Benton Country Code Chapter 15.04 Wetlands would typically require a 40-foot standard buffer around the wetland for proposed work (Benton County 2018). As the Micrositing Corridor is well beyond the required buffer, disturbance of the wetland would be avoided.
- The Project layout has been altered through iterations to site turbines being located a greater distance from the Columbia River.
- Impacts on waters of the state may be avoided by spanning (e.g., with the transmission line) or otherwise micrositing away from the streams. If these impacts cannot be avoided, indirect impacts on water quality will be minimized by working within the ordinary high water line during the dry season when no rain is predicted.
- The Applicant, through design of the Project components, would avoid permanent disturbance impacts on areas in 100-year flood zones/Frequently Flooded Area and alluvial soils associated with Critical Aquifer Recharge Areas (CARA). No permanent disturbance would occur in these areas.
- The Project would be constructed in a phased approach, with completed areas revegetated following completion of construction.
- The Project would comply with the National Pollutant Discharge Elimination System through adherence to a Construction Stormwater General Permit from the Washington State Department of Ecology (Ecology). Erosion and surface water runoff during construction and operation would comply with the Construction Stormwater General Permit.
- Water conservation would be implemented to the extent practicable by use of less water-intensive methods of dust suppression when possible, including use of soil stabilizers, tightly phasing construction activities, staging grading and other dust-creating activities, and/or compressing the entire construction schedule to reduce the time period over which dust suppression measures would be required.
- A Temporary Erosion and Sediment Control (TESC) plan would be developed and implemented in accordance with the Stormwater Management Manual for Eastern Washington, detailing specific best

management practices (BMPs) that would be used and where they would be placed, as well as the total disturbance area. The TESC plan would include measures to prevent erosion, contain sediment, and control drainage. The TESC plan would also include installation details of the BMPs, as well as notes, as required by the Stormwater Management Manual for Eastern Washington.

- A Stormwater Pollution Prevention Plan (SWPPP) meeting the conditions of the Construction Stormwater General Permit for Construction Activities would be prepared and implemented prior to construction and again during decommissioning. The SWPPP would detail the activities and conditions at the site that could cause water pollution, and the steps the facility would take to prevent the discharge of any unpermitted pollution. All final designs would comply with the Stormwater Management Manual for Eastern Washington (Ecology 2019). The SWPPP would include the following 13 elements specified in the manual:

    1. Preserve Vegetation/Mark Clearing Limits
    2. Establish Construction Access
    3. Control Flow Rates
    4. Install Sediment Controls
    5. Stabilize Soils
    6. Protect Slopes
    7. Protect Drain Inlets
    8. Stabilize Channels and Outlets
    9. Control Pollutants
    10. Control Dewatering
    11. Maintain BMPs
    12. Manage the Project
    13. Protect Low Impact Development BMPs (Infiltration BMPs) (Ecology 2019)

- All final designs would conform to the applicable Stormwater Management Manual.
- To control erosion and surface-water runoff during construction and operations, the Applicant will prepare a Construction Stormwater General Permit including a TESC plan. Water runoff from the Project will be contained by measures identified in the TESC plan to prevent erosion, contain sediment, and control drainage. The TESC plan will also include installation details of BMPs to be implemented.
- The 0.8-acre of temporary disturbance to the 100-year floodplain is related to the temporary disturbance footprint associated with the new 230 kilovolt (kV) transmission line for the solar intertie. The estimate is based on a standard disturbance width applied along all transmission line corridors but would be modified during final design to reduce impacts as much as possible.[20]

[20] No permanent features would be placed in the 100-year floodplain.

- Stabilized construction entrance and exit areas would be installed at locations where construction vehicles would access newly constructed roads, and/or require access to disturbed areas from paved roads. The stabilized construction entrance and exit areas would be inspected and maintained for the duration of the Project's lifespan.
- Clearing, excavation, and grading would be limited to areas of the Project area absolutely necessary for construction of the Project. Areas outside the construction limits would be marked in the field, and equipment would not be allowed to enter these areas or disturb existing vegetation. To the extent practicable, existing vegetation would be preserved. Where vegetation clearing is necessary, root systems would be conserved if possible.
- Excavated soil and rock from grading would be spread across the site to the natural grade and would be reseeded with native grasses to control erosion by water and wind.
- Silt fencing would be installed throughout the Project area as a perimeter control, including on the contour downgradient of excavations, around the operation and maintenance (O&M) facilities, and around the substations.
- Straw wattles would be used to decrease the velocity of sheet flow stormwater to prevent erosion. Wattles would be used along the downgradient edge of access roads adjacent to slopes or sensitive areas.
- Mulch would be used to immediately stabilize areas of soil disturbance, and during reseeding efforts.
- Jute matting, straw matting, or turf reinforcement matting would be used in conjunction with mulching to stabilize steep slopes that were exposed during access road installation.
- Soil binders and tackifiers would be used on exposed slopes to stabilize them until vegetation is established.
- Concrete chutes and trucks would be washed out in dedicated areas near the foundation construction locations. This practice would prevent concrete washout water from leaving a localized area. Soil excavated for the concrete washout area would be used as backfill for the completed footing to ensure that the surface soils maintain infiltration capacity.
- Effluent discharge from concrete works, including on-site concrete batch plant operations, would be controlled as required by the Construction Stormwater General Permit and the Sand and Gravel General Permit to prevent contamination of stormwater runoff. BMPs used (including, but not limited to, Stormwater Management Manual for Eastern Washington BMPs C151E, C154E, and C252E) would include preferential off-site disposal where possible, establishment and maintenance of concrete washout areas when off-site disposal is not possible and monitoring of effluent pH. Specific to operation of an on-site concrete batch plant, any impoundments for process water would be lined and the impoundment capacity adequate to provide treatment and flow control.
- Because the overall Project would meet the Construction Stormwater General Permit's definition of "significant concrete work" (i.e., greater than 1,000 cubic yards of concrete placed or poured), pH sampling would be completed as specified in the permit. If effluent exceeds the benchmark value, the high pH water would be either prevented from reaching surface water or neutralized. Site BMPs would be designed and implemented to avoid comingling of water, and any stormwater that has comingled with concrete wastewater would be considered process wastewater and managed appropriately. Additional sampling and monitoring

requirements are identified in the Sand and Gravel General Permit guidance document, and these requirements would be followed (Ecology 1999).

- The Site Management Plan would include all required elements, including the site map, TESC plan, Monitoring Plan, SWPPP, and Spill Prevention, Control, and Countermeasure (SPCC) Plan.
- An SPCC Plan would be prepared to prevent discharge of oil into navigable waters.
- To facilitate installation of the wind turbine generator footings, large excavations would be created. Soil from these excavations would be temporarily stockpiled and used as backfill for the completed footing. Silt fencing would be installed around the stockpiled material as a perimeter control. Mulch or plastic sheeting would be used to cover the stockpiled material. Soils would be stockpiled and re-used to minimize potential mixing of productive topsoils with deeper subsoils.
- After construction and decommissioning are each completed, the site would be revegetated with an approved seed mix. When required, the seed would be applied in conjunction with mulch and/or stabilization matting to protect the seeds as the grass establishes. Revegetation would take place as soon as site conditions and weather allow, following construction and decommissioning.
- If water crossings are needed, check dams and sediment traps would be used during the construction of low-impact ford crossings or culvert installations. The check dams and sediment traps would minimize downstream sedimentation during construction of the stream crossings.
- During construction and operation, source control measures would be identified in the SPCC Plan to reduce the potential of chemical pollution in surface water or groundwater during construction.
- To the extent practicable, construction activities would be scheduled to occur in the dry season, when soils are less susceptible to compaction and erosion. Similarly, soil disturbance would be postponed when soils are excessively wet, such as following a precipitation event.
- Equipment oil-filling, fueling, or maintenance activities would occur a substantial distance from watercourses or wetlands to minimize water quality impacts in the event of an accidental release. Oily waste, rags, or dirty or hazardous solid waste would be collected in sealable drums at the construction laydown yards, to be removed for recycling or disposal by a licensed contractor.
- During Project construction and operation, fuel or oil stored aboveground would be kept in secondary containment if it is located less than 600 feet from navigable waters of the state or near a drain that may impact navigable waters of the state.
- If temporary or permanent impacts on ephemeral and intermittent stream channels cannot be avoided, and work in the OHWL is necessary, a Hydraulic Project Approval may be required and would be applied from the Washington Department of Fish and Wildlife (WDFW) during final design of the Project.
- Detailed design of each stream crossing would be determined during the design phase. The general strategy for the stream crossings is as follows:
  - Solar Area Layouts: solar array placements are limited to a maximum slope of 14 percent, and steep canyon areas (where streams run) should be avoided. In most cases, collector lines would run overhead at these canyon areas or be routed around them. In cases where buried collector lines do need to cross a stream, wetland, or drainage ditch/swale, the crossing is typically accomplished by boring beneath the

stream bed. If access roads are required to cross a stream bed, then a suitably sized culvert should be installed to permit through flow. A hydrologic and hydraulic analysis is required to be performed to analyze the stream flow and properly size any installed culvert(s), water crossing, or bridge structures, if required. Where possible, the access roads may be routed around stream beds.

  - Turbine Layouts: it is primarily collection lines that would cross the identified streams. If the stream crossing is in a steep canyon then the collection line is typically strung overhead, and in other areas the collection line is typically bored under the existing stream or drainage bed. Where collector and transmission lines cross Sheep Canyon and Webber Canyon, the lines would run overhead, and disturbance of stream features and adjacent steeply sloped habitat would be avoided. Most access roads are placed at saddles between the high points, but where streams must be crossed then a suitably sized culvert would be designed and installed to permit through flow. A hydrologic and hydraulic analysis would be performed to analyze the stream flow and properly size any installed culvert(s), water crossings, or bridge structures, if required. Where possible, the access roads may be routed around stream-beds.

- The Applicant would monitor erosion during operation of the Project on a regular schedule and after large rainfall or snowmelt events. Corrective action would be taken as necessary. All Project facilities would be designed, operated, and maintained to minimize erosion potential, and permanent stormwater BMPs would be installed to control runoff. The permanent BMPs would be maintained for the life of the Project.
- Water use would be minimized by using solar panel washing methods that reduce the required amount of water, such as using robotic panel washing equipment.
- Washing of solar panels would be conducted using only water, with no surfactants or other chemicals added.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.4.2.5, Post-Adjudication Applicant Commitments.

4.4.2 Impacts of Proposed Action

Potential impacts related to the turbines, solar arrays, and battery energy storage systems (BESS) may be generalized when impacts are common within the Wind Energy Micrositing Corridors or Solar Siting Areas. Where impacts on water resources are anticipated to differ, the impacts are broken into individual Project components. This Environmental Impact Statement (EIS) describes potential impacts specific to each proposed turbine option (represented by Turbine Option 1 or Option 2), solar fields, BESS, or substations where this information was available in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022). For the purpose of the water resources impact assessment, the Project components considered are described below**:**

- **Wind Energy Micrositing Corridor:** The Micrositing Corridor includes the wind turbine towers, access roads, crane paths, laydown areas, operation and maintenance (O&M) facilities, meteorological towers, collector lines, and transmission lines. The Applicant provided the areas of disturbance related to Turbine Option 1 but not for Turbine Option 2. Option 1 includes a greater number of turbines than Option 2. It is assumed that Option 2 would have the same or, potentially, fewer impacts on water resources than Option 1. Therefore, only Option 1 is assessed.
- **Solar Arrays:** Three Solar Siting Areas are proposed. Impacts from the Solar Siting Areas are further divided into the East Solar Field, County Well Solar Field, and Sellards Solar Field, where impacts are

anticipated to differ. The three Solar Siting Areas differ in size based on total acreage of impact. Impacts from the Solar Siting Areas include areas under the solar arrays and within the permanent fence.

- **Battery Energy Storage Systems:** Up to two BESS are proposed.[21] Impacts on water resources from the BESS are not anticipated to differ, so one assessment is provided that applies to all BESS.
- **Substations:** Five substations are proposed. Each substation is anticipated to have the same impact on water resources, so one assessment is provided that applies to all substations.
- **Comprehensive Project:** The assessment of the comprehensive Project includes combined impacts from all components.

4.4.2.1 Impacts during Construction

The following Project activities would have the potential to cause impacts on water resources during construction:

- **Site clearing:** Vegetation and soils would be removed during construction. Soils unsuitable for construction (such as organics and silts) would be removed from the site, and load-bearing granular materials and aggregates would be brought to the site to facilitate construction. Site clearing would remove vegetation and expose soils, which could result in erosion from surface water runoff that could enter nearby waterways.
- **Stockpiling soil:** Removal of soil and storage on site for future work could increase the potential impacts for generation and mobilization of sediments into downstream water resources.
- **Site grading:** Moving material onto the site and placing fill or other soil on the site could increase the potential for generation and mobilization of sediments into downstream water resources. Change in contours could interrupt and alter the movement of water on the site.
- **Concrete work:** Project construction would use approximately 500,000 cubic yards of concrete for facility foundations (Horse Heaven Wind Farm, LLC 2022). This would be considered “significant concrete work” under a Construction Stormwater General Permit, as the total work would be greater than 1,000 cubic yards of concrete placed or poured. Concrete would be required for the concrete pads that would be constructed for the wind turbines, substations, BESS, and O&M facilities (Horse Heaven Wind Farm, LLC 2022).

  Mixing and pouring concrete on site for Project components such as turbine footings could increase the potential for release of alkaline wash water that could impact water resources. The use of an on-site concrete batch plant during construction of the Project and potential impacts to water resources was analyzed as part of the assessment. The Applicant indicated that the on-site concrete batch plant would be located in the east laydown area for Phase 1 construction and the west laydown area for Phase 2 construction. Concrete work has the potential to impact surface water and water quality.
- **Increase in impervious surfaces:** “Impervious surface” refers to components of the built environment that have lower absorption capacity than natural ground cover. Examples of impervious surfaces include pavement, gravel, and concrete. Impervious surfaces, relative to natural ground cover, have reduced water infiltration rates relative to the amount of water that is lost as surface runoff. Project construction would increase impervious surfaces within the Lease Boundary through the creation of gravel roads, crane paths,

[21] The Applicant provided three locations for consideration of constructing the two BESS. An analysis for all the components and distinct parts as presented in Table 2.1-1 of the ASC has been completed where enough information was provided to do so.

and concrete turbine footings. This could increase the potential for surface water runoff to the receiving environment. Many biological and physical measures of stream quality decline with increasing cover of impervious surfaces in a watershed. As a basic framework, impervious surface cover within a watershed can be used to estimate stream quality (Centre for Watershed Protection 2003).

- **Water use:** Project construction would require water for road construction, concrete mixing, dust control, etc. According to the 2022 ASC, water would be sourced from suppliers located near the Lease Boundary and would likely be sourced from local public utilities. This may include a local off-site public utility with water sources being the Columbia or Snake River, local private irrigators with collector wells on the banks of the Columbia River, or wells that are fed from regional aquifers (Horse Heaven Wind Farm, LLC 2022). Appendix J of the ASC includes a letter from the Port of Walla Walla indicating an Availability of Water for Hire as a potential supplier (Horse Heaven Wind Farm, LLC 2022). If the Project requires large amounts of water for routine activities during construction or operations, water use on site presents the potential to impact public water supply as the water would be sourced from an available public utility. Water use on site would be required for concrete works during construction and would be required for building facilities during operation. This is discussed further in the public water supply subsection below. Additional assessment of public water supply as a social resource is discussed in Sections 3.15 and 4.15 (Public Services and Utilities).
- **Hazardous substances:** Use and storage of hazardous substances on site presents the potential for an accidental spill that could enter waterways within the Lease Boundary.

Impact Description

This section evaluates impacts on water resources from the Proposed Action. The following potential impacts were identified for construction and are evaluated further for each water resource:

- Physical disturbance
- Water quality
- Hydrology
- Introduction of hazardous substances
- Public water supply security

For each impact, the adverse effects on surface water, runoff and absorption, floodplains, groundwater, and public water supply are further evaluated, where applicable. The five impacts and how they are used to assess impacts are defined below.

Physical Disturbance

Physical disturbance refers to a physical alteration of a water resource that results from Project disturbance. Physical disturbance could result from either a temporary or a permanent disturbance during construction.

- **Temporary disturbance** is defined as an alteration of a water resource for part or all of the duration of Project construction, which would be returned to pre-disturbance conditions following construction.

- **Permanent disturbance** is defined as an alteration of a water resource for the life of the Project, from construction through to decommissioning, which would be returned to pre-disturbance conditions following decommissioning.

Surface Water and Wetlands

The 2022 ASC identifies 31 ephemeral streams and two intermittent streams that intersect the Wind Energy Micrositing Corridor and Solar Siting Areas (see Section 3.4 of this EIS) (Horse Heaven Wind Farm, LLC 2022). The Project is anticipated to have the following impacts on these streams:

- Temporary disturbance from collection lines, roads, crane paths, and transmission lines would impact 19 of the 31 mapped ephemeral streams and both intermittent streams located within the Micrositing Corridor.
- Permanent disturbance of one ephemeral stream would occur within the ordinary high-water level (OHWL) and is anticipated to be required to construct a road culvert within the Micrositing Corridor.

The wetland located within the Lease Boundary is rated as Category IV according to the Washington State Department of Ecology's (Ecology's) Washington State Wetland Rating System for Eastern Washington and is not within the temporary or permanent disturbance areas (Hruby 2014; Horse Heaven Wind Farm, LLC 2022). The wetland is located approximately 240 feet from the Micrositing Corridor, which meets the minimum buffer for a Category IV Wetland of 40 feet in Benton County (Benton County Code 15.04; Benton County 2018). No impacts to wetlands or wetland buffers are anticipated to occur from Project construction.

The Applicant has included two laydown areas which would be used as the locations for a temporary concrete batch plant: two laydown areas are located in the east and one in the west. The distance of the laydown areas from surface water and wetlands was measured to help identify potential impacts:

- Laydown Area 1 located in the west Project Lease Boundary is located approximately 1,812 ft from the nearest mapped stream.
- Laydown Area 2 located in the east Project Lease Boundary intersects a mapped stream. Approximately 72 square feet of the laydown area overlaps the stream.

Vegetation clearing and soil disturbance may be required as part of the construction of laydown areas and to establish a temporary batch plant. The overlap of Laydown Area 2 would result in impacts to instream habitat that may have impacts to surface water. Disturbance within instream areas has increased potential for sedimentation, even if instream work is completed during the dry season. Vegetation clearing would remove plant roots which help provide soil stability to soil and soil disturbance loosens soil which could increase the risk of sedimentation. Additional permits for instream work are likely to be required to construct the Project as proposed by the Applicant. If so, the Applicant may be required by EFSEC and its consulting agency to demonstrate that instream work cannot be avoided to construct the Project.

Runoff/Absorption

Project construction could result in increased runoff or a loss of absorption capacity within the Lease Boundary. Site clearing would remove vegetation and soils that act to intercept water and aid in infiltration. Physical disturbance of vegetation and soils during Project construction could increase surface runoff and erosion. In addition, construction of roads, turbine footings, and other Project infrastructure would increase the area of impervious surface within the Lease Boundary, which could also reduce the absorption capacity and increase surface runoff.

In total, Project construction would result in 2,952 acres of temporary disturbance and 6,869 acres of permanent disturbance. Areas of disturbance associated with each Project component are summarized in Tables 2.1-1 and 2.1-2 of Chapter 2. The areas of permanent disturbance within the Micrositing Corridor are assumed to be primarily impervious surfaces, including gravel roads, concrete tower footings, tower pads, and other Project infrastructure.

Rain events during Project construction could result in increased runoff from the site. Changes to contours from Project construction would be minimal, and stormwater would be expected to continue to follow the natural contours of the site (Horse Heaven Wind Farm, LLC 2022). Temporary disturbance areas would be revegetated following construction, restoring absorption capacity, while permanent disturbance areas would remain until decommissioning and correspond to the areas where infrastructure such as panel footing remain. Mulching would be used to stabilize soils on site until vegetation becomes established (Horse Heaven Wind Farm, LLC 2022). In addition, within the Solar Siting Areas revegetation would occur under and between the solar panels following Project construction with low-growing grasses and forbs similar to temporary disturbance areas. It is assumed that the absorption capacity after revegetation would be the same as pre-disturbance within Solar Siting Areas (Horse Heaven Wind Farm, LLC 20212).

Soils within the Lease Boundary have moderate permeability. Given the depth of soils, surface water is expected to continue to infiltrate the ground both during and after construction; therefore, increased surface runoff would be minimal (Horse Heaven Wind Farm, LLC 2022). Construction is proposed to occur in a phased approach, enabling revegetation to be performed in areas of temporary disturbance where construction has been completed (Horse Heaven Wind Farm, LLC 2022). This would limit the amount of exposed soil at any given time. Because the area's climate is seasonally dry, impacts resulting from increased runoff related to temporary or permanent disturbance would be most pronounced during heavy rainfall events. Storms in eastern Washington are typically high-intensity but short in duration (Ecology 2019). Erosion potential increases with the intensity and duration of rain events (Ritter 2012).

Based on the Applicant's habitat mapping, impervious surfaces are assumed to be associated with the developed/ disturbed habitat category. Approximately 1.2 percent of the Lease Boundary is mapped as developed/disturbed (Horse Heaven Wind Farm, LLC 2022). The Project would increase impervious surfaces within the Lease Boundary. Impervious surfaces resulting from Project construction would increase the total impervious surfaces by approximately 0.4 percent in the Lease Boundary, excluding the permanent disturbance within Solar Siting Areas. The total impervious surface, assuming no other development in the Lease Boundary, would increase to approximately 1.6 percent of the Lease Boundary.

Solar Arrays

Impervious surfaces include the permanent gravel access roads, concrete turbine footings, substations, and BESS. Solar Siting Areas were excluded because, while they would involve permanent disturbance due to the solar arrays and installed fencing, they would be revegetated following construction and thus would not result in a permanent impervious surface on the ground. The ground under the solar arrays in the Solar Siting Areas would remain natural soil and be revegetated with low-growing grasses and forbs (Horse Heaven Wind Farm, LLC 2022).

High flows can result in increased erosion if unmitigated, and erosion begins to occur within steam channels when impervious surfaces reach 5 percent of the watershed (Ecology 2019). Impervious surfaces could increase surface runoff to surface water within the Lease Boundary, potentially leading to increased erosion and sediment

mobilization. Water within the Lease Boundary ultimately drains into the Yakima and Columbia Rivers, both of which are fish-bearing. However, Project construction would include a Stormwater Pollution Prevention Plan (SWPPP) that would identify appropriate mitigation and BMPs for reducing surface runoff from the Project. In addition, given the capacity for water infiltration of the surrounding Lease Boundary, surface runoff is anticipated to be intercepted by vegetation and infiltrate the soil.

Floodplains

Floodplains are areas adjacent to water sources that are periodically flooded and provide several important ecological functions, including:

- **Water storage:** During flood events, floodplains serve to store excess water, slow water velocity, and reduce erosion.
- **Flow rate and erosion reduction:** Vegetated floodplains slow overland flow, which allows water time to infiltrate the ground, thereby recharging groundwater and reducing erosion.
- **Filter water:** Vegetated floodplains can filter nutrients and pollutants from water before they enter downstream waterways (FEMA 2020).

Within the Lease Boundary, approximately 149 acres of land within the 100-year floodplains/Frequently Flooded Areas are known to occur. CARAs are identified by Ecology to protect community drinking water by preventing pollution of groundwater and maintaining supply (Ecology 2005). The 2022 ASC identifies approximately 0.8 acres of land within the 100-year floodplains/Frequently Flooded Areas, which are associated with CARAs, that would be temporarily impacted during Project construction (Horse Heaven Wind Farm, LLC 2022). Temporary disturbance from construction would occur in less than 1 percent of the floodplains within the Lease Boundary.

The Applicant has included a commitment to avoid impacts on water resources by spanning or otherwise micrositing away from the streams (Horse Heaven Wind Farm, LLC 2022). The temporary impacts identified on the 100-year floodplain are associated with the 230 kV transmission line and was calculated using a standard buffer width for the transmission line for the solar connection. The Applicant indicates that the construction limits would be modified to reduce impacts as much as possible to areas within the 100-year floodplain during final design (Horse Heaven Wind Farm, LLC 2022). Clear-spanning the transmission line over the 100-year floodplain would avoid temporary disturbance, including vegetation removal and soil disturbance in the floodplain. Project construction and decommissioning would require site clearing, which would also temporarily impact the ecological functions provided by floodplains. No permanent features are proposed to be developed within the 100-year floodplain.

No physical disturbance of floodplains from the solar arrays, BESS, or substations would occur during Project construction; therefore, impacts are not anticipated, and no further assessment is provided. Impacts from the comprehensive Project are rated the same as for the Micrositing Corridor.

Groundwater

Project construction would not use groundwater resources, and it is unlikely that the Project would affect groundwater quantity, quality, or flow direction (Horse Heaven Wind Farm, LLC 2022). Water required for Project construction would not be sourced from groundwater resources on site but would be acquired from a public water supply and transported by truck to the site (Horse Heaven Wind Farm, LLC 2022).

While groundwater would not be directly impacted, it could be indirectly impacted through loss of associated alluvial soils. Soil functions to filter pollutants from surface runoff, and soil biota can degrade pollutants prior to water reaching groundwater sources (Keestra et al. 2012). Impacts on groundwater from Project construction would include temporary disturbance of approximately 1.6 acres of alluvial soils (i.e., soils deposited by surface water) associated with CARAs. Approximately 160 acres of alluvial soils occur within the Lease Boundary. Less than 1 percent of alluvial soils would be temporarily disturbed during Project construction.

The alluvial soils that would be temporarily impacted are located within the Micrositing Corridor; therefore, the physical disturbance of groundwater resources is assessed for the Turbine Option 1 and Option 2 separately from the other Project components. Temporary disturbance of alluvial soils would result in an indirect impact on groundwater resources.

No other Project components would result in physical disturbance to groundwater resources, and they are not assessed further. Impacts that would result from the comprehensive Project would be the same as impacts from the Micrositing Corridor.

Water Quality

Surface Water and Wetlands

Project construction activities such as clearing, concrete works, soil stockpiling, and runoff from gravel roads could result in impacts on water quality. Impacts on surface water quality could occur where construction activities interact with ephemeral and intermittent streams. Ephemeral streams flow only during and shortly after major precipitation events, while intermittent streams contain water seasonally, typically during seasonal precipitation, winter snowmelt, and spring runoff (Nadeau 2015). Impacts on water quality would increase during precipitation events and during seasons of high flow such as winter snowmelt and spring runoff, as there would be potential for contaminants or sediments to be carried downstream.

Potential impacts on water quality include increased sedimentation, change in water pH from concrete and from the concrete batch plant, and change in water quality parameters. Impacts on water quality are rated as direct impacts from Project construction because they would occur at the same time and place as the activity. Mitigation measures, including an SWPPP and BMPs, would reduce the potential for impacts on water quality. Project construction within the Micrositing Corridor would interact with ephemeral and intermittent streams, which could impact water quality. Furthermore, the east and west construction laydown areas are located within the Micrositing Corridor. Therefore, the Micrositing Corridor is rated separately from other Project components.

A portion of Laydown Area 2 is located within a mapped stream, which increases the risk for impacts to water quality from the concrete batch plant. The Applicant has included commitments to complete the necessary permits including a Construction Stormwater General Permit and Sand and Gravel General Permit. Due to the size of the concrete works (>1,000 cubic yards of concrete placed or poured) the Project qualifies as significant concrete works and pH sampling will be required under the permit (Horse Heaven Wind Farm, LLC 2022). The US EPA water quality guidelines for freshwater suggest a pH of 6.5 to 9.0 for freshwater. Concrete wash water is highly alkaline with high pH values (typically greater than 11) (Aruntaş et al. 2022). Prolonged exposure to high pH levels can cause impacts to certain fish organs such as gills or eyes (EPA 2023). The Sand and Gravel Permit and Construction Stormwater General Permit do not allow the discharge of water outside the range of pH 6.5 to 8.5 standard units. The location of Laydown Area 2 within a stream creates increased potential for impacts to surface water from concrete batch plants due to accidents and malfunctions.

Ephemeral stream channels were identified in the East Solar Field and Sellards Solar Field (Section 3.4, Table 3.4-2). While neither temporary nor permanent disturbances are planned within the waterways, the proximity of Project construction to surface water could impact water quality through surface runoff or other pollutants. Impacts on water quality from the East Solar Field and Sellards Solar Field would be minimized with the preparation of and adherence to an SWPPP, installation of BMPs, and the maintenance of vegetation adjacent to streams that can intercept water and allow infiltration into the ground before the water reaches a stream.

No stream channels were identified within or adjacent to the County Well Solar Field, BESS, or substations; therefore, no impacts are anticipated.

Hydrology

Surface Water and Wetlands

Project construction would require the removal of vegetation and soil during temporary disturbance, which could impact stream hydrology (Ecology 2019). Stream hydrology in this context refers to the behavior of surface water and impacts on the movement of surface water. Impacts during Project construction could result in increased potential for erosion and mobilization of sediments or change in topography of the stream from increased surface runoff; however, ephemeral and intermittent streams are prone to these impacts naturally. Ephemeral and intermittent streams exhibit high variation in the amount of water flow at various points throughout the year compared to perennial streams, which have a more constant flow. In semi-arid and arid areas, this often results in greater surface runoff and erosion (Levick et al. 2008). The Applicant would revegetate areas of temporary disturbance along ephemeral and intermittent streams following construction, which can mitigate some of the impacts.

The construction of permanent gravel roads and wind turbine footings would also increase the total area of impervious surfaces within the Lease Boundary as part of the permanent disturbance from the Project, which could impact stream hydrology by changing long-term sedimentation rates (Ecology 2019). The gravel roads that intersect with streams in the Lease Boundary are located within the Wind Energy Micrositing Corridor. In addition, the installation of a culvert at one of the intermittent streams, as currently proposed, could also increase the potential for erosion and sedimentation, resulting in changes to the stream channel. Over time, culverts can cause increased scour at the inlet and accumulation of sediment at the outlet unless they are appropriately armored with large-diameter clean rock (i.e., riprap) and designed to an appropriate size to accommodate seasonal high flows for the area (USDA 2009). The increase in impervious surfaces and installation of a culvert are assessed as indirect impacts because the impact may not be realized at the time of construction, although may become evident over time..

Ephemeral and intermittent streams would be temporarily and permanently impacted by construction within the Wind Energy Micrositing Corridor but would not be impacted during construction of other Project infrastructure. Therefore, the potential for impacts from Turbine Option 1 and Option 2 are assessed separately from other Project components. The potential impacts within the Wind Energy Micrositing Corridor are assessed for the proposed temporary disturbance and the proposed permanent disturbance.

Project construction of the solar arrays, BESS, and substations would not result in temporary or permanent disturbance to the ephemeral and intermittent streams; therefore, impacts are not anticipated and the Project components are not assessed further. Assessment of the impacts of the comprehensive Project are the same as for the Micrositing Corridor.

Introduction of Hazardous Substance

Surface Water and Wetlands

Hazardous substances that would be required for Project construction include diesel fuel, synthetic lubricating oil, glycol-water mix, transformer mineral oil, concrete, and hydraulic fluid (Horse Heaven Wind Farm, LLC 2022). During Project construction, there is potential that these hazardous substances could be accidentally released into surface water. Spills of hazardous substances would have the greatest impact on surface water during seasonally wet periods within the winter and spring months and during periods of rainfall. During these times, ephemeral and intermittent streams could convey spilled hazardous substances beyond the Lease Boundary into downstream environments within the watershed. Spills could cause water or soil contamination, change water chemistry or quality, and impact fish habitat in downstream environments.

During Project construction, a hazardous substance spill could occur during equipment maintenance, fueling, or concrete placement, or as a result of improper maintenance procedures. The potential sources of hazardous substances during Project construction are anticipated to be small point sources, such as an oil leak from a piece of equipment. Hazardous substances would be stored in temporary aboveground tanks in the construction yard during construction within an area that provides secondary containment (Horse Heaven Wind Farm, LLC 2022). Where practicable, the Applicant proposes conducting work within streams outside the seasonally wet period and during dry conditions. Spill response equipment would be stored on site within each vehicle to respond to accidental release of hazardous substances (Horse Heaven Wind Farm, LLC 2022).

Diesel products and hydrocarbons range in their chemical composition. In general, products are moderately soluble and are somewhat persistent in the environment. Because of its persistence, diesel can cause toxic effects on invertebrates and wildlife that live in water or sediments (API 2016). Diesel and other hydrocarbon-based products readily penetrate porous substances such as soil (API 2016).

Floodplains

Project construction could result in a spill of a hazardous substance that has the potential to impact floodplains. Diesel products and hydrocarbons range in their chemical composition and can cause soil contamination. Release of a hazardous substance that could occur during Project construction has the potential to impact vegetation within the adjacent floodplain areas that are not already disturbed from construction. Loss of vegetation within floodplain environments could impact the ecosystem services provided by floodplains, including slowing water runoff, trapping sediments, and improving water quality (Suchara 2018).

The introduction of a hazardous substance could occur for any Project component, but only the Wind Energy Micrositing Corridor would have potential to impact floodplains within the Lease Boundary. During Project construction, spills of a hazardous substance could occur during equipment maintenance, fueling, or concrete placement, or due to improper maintenance procedures. A Spill Prevention Control and Countermeasures (SPCC) Plan would be created for the Project (Horse Heaven Wind Farm, LLC 2022). The potential sources for the introduction of hazardous substances are expected to be small point sources, and spill response equipment would be available on site (Horse Heaven Wind Farm, LLC 2022).

The impact of the Solar Arrays, substations, and BESS would be negligible as floodplains do not occur in these areas, and they are not assessed further. The impacts of the comprehensive Project would be the same as the Micrositing Corridor.

Groundwater

Project construction could result in the introduction of hazardous substances; however, impacts on groundwater would be unlikely. Diesel products and hydrocarbons range in their chemical composition. Diesel and other hydrocarbon products readily penetrate porous substances such as soil (API 2016). The movement of hazardous substances through porous soil would have the potential to impact groundwater. If hazardous substances contact groundwater, there would be the potential for impacts on water quality and water chemistry and, potentially, downstream impacts as well. The greatest area of potential impact would be areas of alluvial soils associated with CARAs within the Micrositing Corridor.

Depth to water within the Lease Boundary averages 184 feet. The SPCC Plan would include measures for preventing and controlling spills during construction and operations (Horse Heaven Wind Farm, LLC 2022). Sources for accidental spills would likely be small point sources, and spill response equipment would be available on site. A critical component to preventing impacts on groundwater from an accidental spill is having resources available on site and having employees trained and prepared to respond to an incident.

Impacts on Public Water Supply during Drought or Water Shortage

Project construction activities that would require water include concrete pouring, fugitive dust control, and fire prevention, when required. Construction would require an estimated 220,000 gallons per day, for a total construction demand of approximately 120 million gallons of water (Horse Heaven Wind Farm, LLC 2022). The anticipated amount of water required during construction includes an estimated 12.6 million gallons that would be specifically required for on-site concrete batch plants. The Applicant has indicated that an on-site concrete batch plant would be required and would be sited in the east laydown area during Phase 1 of construction (approximately four months) and moved to the west laydown area during Phase 2 of construction (approximately four months). Impacts from on-site concrete batch plants to public water supply have been included in the assessment (Horse Heave Wind Farm, LLC 2023a).

The Project would obtain water from a local off-site public facility, local private irrigators, or wells that are fed from regional aquifers (Horse Heaven Wind Farm, LLC 2022). Water would be transported to the site by truck and stored in water tanks during construction. Appendix J of the ASC includes a letter from the Port of Walla Walla indicating an Availability of Water for Hire as a potential supplier (Horse Heaven Wind Farm, LLC 2022).

Water used for construction would be required for all Project components. The estimate of 120 million gallons of water is for the comprehensive Project. It is assumed the water required for individual Project components would be less than the comprehensive Project. The impact on water supply would be direct. The magnitude is rated low for individual Project components and medium for the comprehensive Project. The duration would be temporary, as impacts would be anticipated if water demand for construction exceeds available supply, particularly in the event of a drought or when water restrictions are imposed to conserve for other uses, such as domestic consumption and fire response. The likelihood is rated feasible as water would be required for construction. The spatial extent would be regional as impacts on public water supply could affect the regional scale.

Turbine Option 1 and Turbine Option 2

The impact ratings for Turbine Option 1 and Option 2 are described below. The ASC provides only disturbance data for Turbine Option 1, and therefore, impacts from Turbine Option 2 on water resources are anticipated to be the same.

- **Physical Disturbance:** The physical disturbance to water resources is rated low magnitude. Physical disturbance within the Micrositing Corridor would temporarily impact 19 ephemeral streams, two intermittent streams, 72 square feet within a stream, and less than 1 percent of alluvial soils within the Lease Boundary. Temporary disturbance in the 100-year floodplain is assumed to be avoidable by clear-spanning the transmission line over the 100-year floodplain. Permanent disturbance from construction would impact one intermittent stream. Mitigation measures including applications for a Hydraulic Project Approval, preparation of an SWPPP, and implementation of BMPs would reduce the impacts on water resources during construction. The duration of the impacts is rated short term for temporary disturbance and long term for permanent disturbance. The likelihood of impact is rated unavoidable. While the ASC indicates that disturbance to these water resources would be required for construction, Applicant commitments would reduce the likelihood of impact. The spatial extent is rated confined to the Lease Boundary. Temporary and permanent disturbance within the Micrositing Corridor would impact a large area in the Lease Boundary through vegetation removal and soil disturbance, which are important for intercepting and absorbing water.
- **Water Quality:** Impacts on water quality are rated low magnitude because the streams on site are dry for most of the year. Laydown Area 2, where the temporary concrete batch plant will be sited, occurs within a stream area, which increases the risk to water quality from accidents and malfunctions; however, proposed mitigation measures are anticipated to minimize potential impacts. The duration of impacts is rated temporary as the impacts would only affect water quality if water were present in the streams. The likelihood of impacts on water quality during construction is rated as unlikely, as scheduling construction activities near streams during the dry season along with BMPs would minimize the chance of occurrence. The spatial extent of the impact is rated local because impacts on water quality could impact downstream environments outside the Lease Boundary.
- **Hydrology:** Impacts on hydrology from Project construction would be direct. The impact is rated low magnitude. The duration is rated short term for temporary disturbance and long term for permanent disturbance. The permanent disturbance relates to the potential impacts on stream hydrology following the culvert installation in the intermittent stream. The likelihood of impacts from temporary disturbance during construction is rated as unlikely with implementation of Applicant commitments consistent with the SWPPP and TESC plan. The spatial extent is rated limited. The likelihood of impacts from permanent disturbance (i.e., the culverted intermittent stream) is rated unavoidable, as a culvert is anticipated to be required. The impacts would be minor, provided that the culvert is appropriately designed (i.e., sized) to minimize restriction on flows; installed with a headwall at the intake and outlet to convey flows into the culvert (thereby minimizing the potential for flows bypassing the culvert), and protected with riprap armoring at the inlet and outlet to minimize erosion and scour. The spatial extent is rated limited due to the small area within the Lease Boundary.
- **Introduction of Hazardous Material:** Introduction of hazardous substances would be a direct impact on water resources because it would occur at the time and place of the activity. The impacts are rated low magnitude. Potential spills during construction would likely be small point sources. Applicant committed measures would minimize the risk. The duration is rated temporary with implementation of mitigation

measures, including an SPCC Plan. Spill response equipment would also be stored on-site at construction locations, which would provide an immediate response to spills should they occur. The likelihood is rated as unlikely. The spatial extent is rated as local, as impacts could extend beyond the Lease Boundary during high-rainfall events or the wet season.

- **Impacts on Public Water Supply:** For impacts on public water supply, the magnitude is rated low and the duration is rated temporary. The likelihood is rated feasible. Water would be required for construction and concrete is a water-intensive material; however, impacts on public water supply would be anticipated only during drought or water shortage. The spatial extent would be regional as impacts on public water supply could affect the regional scale.

Solar Arrays

The impact ratings for the Solar Arrays during Project construction are described below.

- **Physical Disturbance:** The impacts from physical disturbance of water resources are rated low for the Solar Arrays. Impacts are mainly related to vegetation clearing and soil disturbance that could impact absorption capacity during construction. Mitigation measures including an SWPPP and TESC plan would reduce the risk. The duration is rated short term for temporary disturbance and permanent disturbance. Permanent disturbance within the Solar Siting Areas is associated with areas under the solar arrays; however, the Applicant has committed to revegetating under solar arrays following construction. The likelihood is rated as unavoidable, and the spatial extent is rated confined.
- **Water Quality:** Based on the field-delineated streams by the Applicant, ephemeral stream channels were identified in the East Solar Field and Sellards Solar Field. Impacts on water quality could result to ephemeral streams adjacent to disturbance areas associated with construction of the solar fields. The magnitude of impact is rated negligible as a vegetated buffer would be maintained between the physical disturbance and the streams. While temporary and permanent disturbance are not planned within the stream channel, there is potential that surface runoff from construction could impact water quality within the ephemeral stream channels. The Applicant commitments, including an SWPPP, installation of BMPs, and the maintenance of vegetation adjacent to streams that can intercept water and allow infiltration into the ground before reaching a stream, which would minimize the impact. The duration of impacts would be temporary as impacts would only affect water quality if water were present in the streams. The likelihood of impacts is rated as unlikely. The spatial extent of the impact on water quality would be local because impacts on surface water quality could impact downstream environments outside the Lease Boundary.

  The Applicant did not identify any field-delineated streams in the County Well Solar Field. National Wetland Inventory Mapping shows streams within the County Well Solar Field, but none are located within the proposed disturbance for the solar arrays. The impact ratings are identical to the East Solar Field and Sellards Solar Field. Magnitude of impacts is rated negligible. The duration is rated temporary. The likelihood is rated unlikely. The spatial extent is rated local.
- **Hydrology:** No impacts are anticipated from the Solar Siting Areas, and no further assessment is required.
- **Introduction of Hazardous Material:** The impacts from the introduction of hazardous substances are rated negligible in magnitude as construction activities would be sited away from water resources. In the event of a spill, potential releases of hazardous materials on site would likely be small point sources that are expected to be contained using spill response equipment. The duration of impact would be temporary as effective

mitigation measures could address a spill quickly. The likelihood is rated as unlikely. The spatial extent would be limited as movement beyond the initial release point would not be anticipated.

- **Impacts on Public Water Supply:** Impact ratings are identical to Turbine Option 1 and Option 2. The magnitude of impacts on public water supply from construction within the Solar Siting Areas is rated low. The duration is rated temporary. The likelihood is rated feasible, and the spatial extent would be regional.

Battery Energy Storage Systems

The impact ratings for the BESS are described below based on the impact descriptions in Section 4.4.2.1.

- **Physical Disturbance:** No impacts on surface waters are anticipated; however, absorption capacity could be impacted by construction through vegetation removal and soil disturbance. Impacts from physical disturbance are rated low magnitude. The duration of impacts is rated short term for temporary disturbance and long term for permanent disturbance. The likelihood is rated unavoidable, and the spatial extent is rated limited.
- **Water Quality:** Impacts on water quality from construction of the BESS are not anticipated, and no further assessment is required.
- **Hydrology:** Impacts on hydrology from construction of the BESS are not anticipated, and no further assessment is required.
- **Introduction of Hazardous Material:** The magnitude of impacts on surface waters are rated negligible and the duration of impact is rated temporary. The likelihood of impacts on surface waters is rated as unlikely and the spatial extent would be limited. Hazardous material would not mobilize into waterways due to the siting of BESS away from streams.
- **Impacts on Public Water Supply:** The magnitude of impact on public water supply from BESS construction is rated low and the duration is rated temporary. The likelihood is rated feasible, and the spatial extent would be regional.

Substations

The impact ratings for substations are described below based on the impact descriptions in Section 4.4.2.1.

- **Physical Disturbance**: Construction of the substations would not impact streams or wetlands; however, physical disturbance from vegetation clearing and soil disturbance could impact absorption capacity. Impacts from physical disturbance during substation construction are rated low magnitude. The duration is rated short term for temporary disturbance and long term for permanent disturbance. The likelihood is rated unavoidable, and the spatial extent is rated limited.
- **Water Quality:** Impacts on surface waters are not anticipated, and no further assessment is required.
- **Hydrology**: Impacts on surface waters are not anticipated, and no further assessment is required.
- **Introduction of Hazardous Material:** Impact ratings are identical to the impact ratings for the BESS. The magnitude of impacts on water resources are rated negligible and the duration of impact is rated temporary. The likelihood is rated as unlikely. The spatial extent would be limited.

- **Impacts on Public Water Supply**: The magnitude of impacts on public water supply is rated low and the duration is rated temporary. The likelihood is rated feasible, and the spatial extent is rated regional.

Comprehensive Project

The impact ratings for the comprehensive Project are described below based on the impact descriptions in Section 4.4.2.1.1.

- **Physical Disturbance:** Impacts from physical disturbance are rated identical to impacts from Turbine Option 1 and Option 2. The magnitude is rated low. The duration would be short term for temporary impacts and long term for areas of permanent disturbance. The likelihood is rated unavoidable. The spatial extent is rated confined.
- **Water Quality**: Impacts on water quality from the comprehensive Project are rated identical to impacts from Turbine Option 1 and Option 2. The impacts are rated low magnitude and the duration of impacts is rated temporary. The likelihood of impacts on water quality is rated unlikely and the spatial extent of the impact is rated local.
- **Hydrology**: Impacts on hydrology from the comprehensive Project is rated identical to the impacts from the turbines. The impact is rated low magnitude. The duration is rated short term for temporary disturbance and long term for permanent disturbance. The permanent disturbance relates to the potential for impacts on stream hydrology following the culvert installation in the intermittent stream. The likelihood of impacts from temporary disturbance is rated unlikely, and permanent disturbance is rated as unavoidable, as a culvert is anticipated to be required. The spatial extent is rated limited.
- **Introduction of Hazardous Material**: The impacts from the introduction of hazardous material is rated identical to the turbines. The magnitude is rated low, and the duration is rated temporary. The likelihood is rated as unlikely, and the spatial extent is rated as local.
- **Impacts on Public Water Supply**: Impacts on public water supply from the comprehensive Project are rated medium due to the larger water use required by the sum of Project components in comparison to the individual components. The duration of impacts would be rated temporary. The likelihood is rated feasible, and the spatial extent is rated regional.

4.4.2.2 Impacts during Operation

During Project operation, the following activities could result in impacts on water resources:

- Washing solar panels
- Runoff from impermeable surfaces
- Storing and using hazardous substances on the site
- Drought or water shortage that impacts public water supply

Impacts on water resources during operation include the following:

- Increase in surface water runoff
- Increase in sediment mobilization from surface runoff

- Change in water quality from surface water runoff
- Introduction of hazardous substances

Impact Description

Panel Washing

During operation, solar panel washing may be required to remove dirt, airborne dust, pollution, and other particulates that accumulate on the surface of the panels. This accumulation can reduce sunlight penetration and therefore efficiency of solar electricity production (Sugiartha et al. 2019). Washing solar panels restores panel efficiency. Based on the 2022 ASC, the estimated water use across all three solar areas would be approximately 2,025,000 gallons per year, if required (Horse Heaven Wind Farm, LLC 2022).[22] The Applicant indicates that the frequency of panel washing is presently unknown and that, if required, panel washing would occur a maximum of once per year (Horse Heaven Wind Farm, LLC 2022).

As a conservative estimate, the Applicant provided an assessment of the quantity of water that would reach the soil surface. If exactly one-third of the estimated panel washing water were used on the smallest Solar Siting Area, and if all water were to run off the solar panels, assuming no evaporation, the depth of water on the ground would be 0.012 inches across Sellards Solar Field. It is likely that all the water would infiltrate the ground, based on the moderate infiltration rate of soils on site (Horse Heaven Wind Farm, LLC 2022). Vegetation under the solar panels would also increase interception and slow the rate at which water reaches the ground, aiding in water infiltration. Areas within fence lines of the Solar Siting Areas would be vegetated except where permanent access roads and other impervious surfaces are required (Horse Heaven Wind Farm, LLC 2022). Simulations of runoff around solar panels indicate that increased runoff is not anticipated where vegetation is well-maintained under solar panels or in the areas between the solar panels (Cook and McCuen 2013).

Panel washing would use water only without additives (Horse Heaven Wind Farm, LLC 2022). The water used to wash solar panels would be unlikely to cause increased erosion within the Lease Boundary. During panel washing, most of the water would infiltrate directly into the ground. In the event that some of the water did not infiltrate directly into the ground in the vicinity of panels, it would be unlikely to reach any of the intermittent or ephemeral streams since it would be intercepted by vegetation in the vegetated strips between the rows of solar panels (Horse Heaven Wind Farm, LLC 2022). The distance between solar panels would be generally twice the height of the solar panels and would provide sufficient surface area to slow water runoff and allow water infiltration (Horse Heaven Wind Farm, LLC 2022). Because the water used for panel washing would not contain any added chemicals, there would be no need to treat panel wash water.

Panel washing would only be required for the solar arrays; therefore, the impacts of the Micrositing Corridor, substations, and BESS are considered negligible and are not assessed further. Solar panel washing would have an indirect impact on surface water and runoff/absorption. The impacts of panel washing on the comprehensive Project are anticipated to be the same as for the solar arrays.

Panel washing is not anticipated to impact floodplains or groundwater resources. The impacts of panel washing on public water supply are assessed separately.

[22] The EIS has assessed two of the three solar siting areas and therefore assessed a maximum of 1.35 million gallons of water required annually for washing solar panels during operations.

Surface Water Runoff from Impervious Surfaces

Project operation could increase surface water runoff from impervious surfaces. Project infrastructure with impervious surfaces includes the tower footings for the wind turbines and meteorological towers, permanent gravel roads, and areas for O&M facilities. Compacted gravel roads have low water infiltration rates in comparison to natural soil and can result in overland flow, particularly after rainfall events, although they have higher infiltration rates than asphalt paved surfaces. Increased surface water runoff could result in increased erosion and increased sedimentation into adjacent streams or the wetland.

Increase in impervious structures within a watershed can impact stream quality. Because less water infiltrates the ground, more water occurs as surface runoff. In extreme cases, urban development has altered the base flow of streams and can convert ephemeral streams into perennial streams due to changes in water inputs (e.g., irrigation) and decreased infiltration (Centre for Watershed Protection 2003). Furthermore, positive correlations exist between increasing impervious surfaces and increasing peak discharge (Centre for Watershed Protection 2003). Peak discharge is the maximum rate of flow during a storm event.

The wind turbines, meteorological towers, and gravel roads are located predominantly within the Micrositing Corridor. Increased surface water runoff is an indirect impact of Project operations.

The substations and BESS are not anticipated to impact surface water runoff during operation and are not assessed further. The solar arrays are not anticipated to impact surface water runoff from impervious surfaces as the areas under the arrays would be planted with low-growing grasses and forbs and would maintain absorption capacity. The comprehensive Project is rated the same as the Micrositing Corridor.

Introduction of Hazardous Substances

Hazardous substances that would be required for Project operation include diesel fuel, synthetic lubricating oil, glycol-water mix, transformer mineral oil, and hydraulic fluid (Horse Heaven Wind Farm, LLC 2022). Potential impacts of these substances are described in Section 4.4.2.1. Activities during Project operation that could result in the introduction of hazardous substances include fueling of vehicles and maintenance of Project infrastructure. Accidental releases are anticipated to be small, point source releases. Spill response equipment would be located on-site during Project operations (Horse Heaven Wind Farm, LLC 2022). Training would be given to all on-site workers to provide awareness of hazardous substances stored on site and how to properly store and clean hazardous substances (Horse Heaven Wind Farm, LLC 2022). During operation, small volumes of hazardous materials such as pesticide or herbicides, paint, solvents, or cleaners would be stored in the O&M facilities. No secondary containment is planned for the O&M facilities (Horse Heaven Wind Farm, LLC 2022).

Secondary containment is not required for qualified oil-filled operational equipment, which includes transformers and other equipment that contain oil solely to enable operation of the device (EPA 2006). Based on EPA Rule (2006), instead of secondary containment, the owner or operator of qualified oil-filled operational equipment may prepare an oil spill contingency plan and a written commitment of labor, equipment, and materials to control or remove discharged oil. The Applicant would install secondary containment for the substation transformers, and the turbine foundation would function as secondary containment for the turbine gearboxes (Horse Heaven Wind Farm, LLC 2022).

Impacts from the introduction of hazardous substances have the potential to occur for all Project components. Water resources are located only in a few areas of the Lease Boundary and are generally ephemeral and/or intermittent streams and therefore do not convey year-round flows. Potential impacts of the introduction of hazardous substances are considered direct impacts.

Surface Water

Ephemeral and intermittent streams would cross Project infrastructure within the Micrositing Corridor only, but not within the Solar Siting Areas, substations, or BESS.

Floodplains

The only areas of floodplain are located within the Micrositing Corridor. No permanent structures are sited within the 100-year floodplains and no interaction is anticipated.

Groundwater

Groundwater resources are not anticipated to be impacted by the introduction of hazardous substances as no permanent structures are sited within the alluvial soils associated with CARAs, and no further assessment is provided.

Impacts on Public Water Supply

Solar panel washing may be required in order to optimize performance and efficiency. If needed during operation, the solar panels are estimated to be washed once per year; however, the frequency with which solar panel washing would occur may be altered depending on the recommendations by the selected solar panel manufacturer (Horse Heaven Wind Farm, LLC 2022). For the purpose of the assessment, it is assumed that solar panels would be washed at a maximum frequency of once per year. It is anticipated that up to 0.5 gallons of water would be required per solar module on average, or up to approximately 2,025,000 gallons per year, if required (Horse Heaven Wind Farm, LLC 2022)[23]. In addition, water would be required for the O&M facilities. An estimated 5,000 gallons per day is estimated for kitchen and bathroom use, or approximately 1,825,000 gallons per year (Horse Heaven Wind Farm, LLC 2022).

Water for panel washing, if required, and for O&M facilities, would be required for the duration of operations. A potential impact on public water supply from Project operation would be decreased water security, primarily during drought or water shortage. The water used for Project operations would be transported to the site by truck (Horse Heaven Wind Farm, LLC 2022). The Applicant has indicated that water would be sourced from local public facilities, local private irrigators, and/or collector wells fed from regional aquifers (Horse Heaven Wind Farm, LLC 2022). Appendix J of the ASC includes a letter from the Port of Walla Walla indicating an Availability of Water for Hire as a potential supplier (Horse Heaven Wind Farm, LLC 2022). During operation, water use for panel washing would be minimized by using methods that reduce the amount of water required such as using robotic panel washing equipment (Horse Heaven Wind Farm, LLC 2022).

- It is assumed that panel washing would only be required for the solar arrays but water for O&M facilities would be required for all Project components. Therefore, the greatest impact on public water supply would be from the comprehensive Project and solar arrays.

Turbine Option 1 and Turbine Option 2

The impact ratings associated with Turbine Option 1 and Option 2 are described below and are anticipated to be the same during Project operation.

[23] The EIS has assessed two of the three solar siting areas and therefore assessed a maximum of 1.35 million gallons of water required annually for washing solar panels during operations.

- **Surface Water Runoff from Impervious Surfaces**: The impact of increased surface water runoff from impervious surfaces is rated low. The Project would increase impervious surfaces by approximately 0.4 percent in the Lease Boundary. While this is a small change overall in the Lease Boundary, the increase in impervious surfaces would be a 33 percent increase from current levels. Mitigation measures proposed by the Applicant are anticipated to reduce surface runoff to a similar level as existing conditions; therefore, the magnitude is rated low. The duration is rated temporary. While the impervious surfaces would persist from construction to decommissioning, the impacts would be limited to periods of heavy rainfall events, which typically occur in the spring and fall months. The likelihood is rated unlikely. The spatial extent is rated local because, during peak flows, runoff from the site could be transported beyond the Project Lease Boundary.
- **Introduction of Hazardous Substances**: Impacts from the introduction of hazardous substances are rated negligible during Project operations. Impacts from hazardous substances are rated temporary in duration. The likelihood is rated unlikely, and the spatial extent is rated limited.
- **Impacts on Public Water Supply**: Impacts on public water supply would be a direct impact. The magnitude is rated low for Turbine Option 1 and Option 2. The duration of impact is rated temporary as impacts are most likely during periods of drought or water shortage. The likelihood is rated feasible. The spatial extent is rated regional because impacts on local water supply would affect the broader region.

Solar Arrays

- **Panel Washing**: The magnitude of the impact from panel washing is rated negligible magnitude. Impacts are rated negligible because if infiltration does not occur under the solar panels, interception by vegetation and infiltration in the surrounding area would be anticipated prior to water reaching a stream. Vegetated strips would minimize the potential for soil erosion and mobilization of sediments as surface water runoff and would help trap sediment prior to entering streams. The duration for impacts is rated temporary as solar panel washing would occur only once per year. The likelihood is rated unlikely because water is expected to infiltrate the ground (Horse Heaven Wind Farm, LLC 2022). The spatial extent is confined to the Lease Boundary.
- **Surface Water Runoff from Impervious Surfaces**: No impacts are anticipated, and no further assessment is required.
- **Introduction of Hazardous Substances**: Impacts on water resources are not anticipated, and no further assessment is required.
- **Impacts on Public Water Supply:** Operation of the Project would have a direct impact on public water supply. The magnitude is rated low. The duration would be temporary as impacts would only be anticipated during drought or water shortage. The likelihood is rated feasible. Water for the O&M facilities would be required. Panel washing may be required once per year to optimize the performance and efficiency of the solar panels. The spatial extent would be regional because if impacts on local water supply occurred, this would affect the broader region.

Battery Energy Storage Systems

- **Surface Water Runoff from Impervious Surfaces:** No impacts are anticipated, and no further assessment is required.

- **Introduction of Hazardous Substances:** Impacts on water resources are not anticipated, and no further assessment is required.
- **Impacts on Public Water Supply:** Impact ratings are identical to the turbines because the BESS would still require O&M facilities. The magnitude of impact from BESS operations on public water supply is rated low and the duration of impact is rated temporary. The likelihood is rated feasible, and the spatial extent is rated regional.

Substations

- **Surface Water Runoff from Impervious Surfaces:** Impacts on surface water runoff from impervious surfaces associated with the operation of the substations is not anticipated, and no further assessment is required.
- **Introduction of Hazardous Substances:** Impacts on surface waters, floodplains, and groundwater from the introduction of hazardous substances from the operation of substations is not anticipated, and no further assessment is required.
- **Impacts on Public Water Supply:** Impact ratings are identical to the turbines because the BESS would still require O&M facilities. The magnitude is rated low, and the duration of impact is rated temporary. The likelihood is rated feasible, and the spatial extent is rated regional.

Comprehensive Project

- **Panel Washing**: The impact of panel washing from the comprehensive Project is identical to the solar arrays, as these are the only components that require panel washing. The magnitude of the impact is rated negligible. The duration is rated temporary. The likelihood is rated unlikely because water is expected to infiltrate the ground (Horse Heaven Wind Farm, LLC 2022). The spatial extent is rated confined to the Lease Boundary.
- **Surface Water Runoff from Impervious Surfaces**: Impervious surfaces from the Project would be concentrated in the Micrositing Corridor. Impact ratings for the comprehensive Project are identical to the wind turbines. The impact of increased surface water runoff from impervious surfaces is rated low. The duration is rated temporary. The likelihood is rated unlikely. The spatial extent is rated local.
- **Introduction of Hazardous Substances**: Impacts from the introduction of hazardous substances are rated identical to the wind turbines. Impacts are rated negligible during Project operations with mitigation measures such as carrying spill equipment in all vehicles. Impacts from hazardous substances are rated temporary in duration. The likelihood is rated unlikely, and the spatial extent is rated limited.
- **Impacts on Public Water Supply**: Impacts from public water supply are identical to ratings for the solar arrays and consider both O&M facilities and panel washing. The magnitude is rated low and the duration is rated temporary. The likelihood is rated feasible, and the spatial extent is regional.

4.4.2.3 Impacts during Decommissioning

Impacts during Project decommissioning would be similar to impacts during construction (Section 4.4.2.1). Decommissioning would require temporary disturbance areas to facilitate the removal of Project components including the wind turbines, solar arrays, substations, BESS, roads, transmission lines, and O&M facilities resulting in physical disturbance that could impact water resources. It is assumed that the same area of temporary

disturbance that would be required during construction would also be required during decommissioning. Permanent disturbance areas would be restored during Project decommissioning.

Potential impacts on water resources from Project decommissioning include:

- Physical disturbance to facilitate decommissioning
- Change in water quality
- Increase in surface runoff
- Change in hydrology of ephemeral and intermittent streams
- Introduction of hazardous substance

Impact Description

Physical Disturbance

Surface Water and Wetlands

The ASC identifies 31 ephemeral streams and two intermittent streams that intersect the Micrositing Corridor and Solar Siting Areas. Like construction, Project decommissioning would require temporary disturbance of 19 ephemeral streams and both intermittent streams. No permanent disturbance is anticipated during Project decommissioning.

The physical disturbance from temporary disturbance would be a direct impact on surface water. All disturbance of surface water would occur within the Micrositing Corridor; therefore, Turbine Option 1 and Option 2 were assessed separately from the other Project components.

No impacts relating to physical disturbance to ephemeral or intermittent streams or wetlands would occur within the Solar Siting Areas, BESS, or substations. Assessment of impacts from the comprehensive Project would be the same as impacts from Turbine Option 1 and Option 2, as the only impacts from physical disturbance would occur within the Micrositing Corridor.

Runoff/Absorption

Project decommissioning would also result in loss or reduction of runoff and absorption capacity within the Lease Boundary. Site clearing to provide temporary access routes for decommissioning would remove vegetation and soils that act to intercept water and aid in water infiltration. Physical disturbance of vegetation and soils during Project decommissioning could increase surface runoff, resulting in the potential for increased erosion and sedimentation of surface water. In total, Project decommissioning would result in an estimated 2,957 acres of temporary disturbance, as described in Tables 2.1-1 and 2.1-2 of Chapter 2.

Temporary disturbance areas would be revegetated following decommissioning, restoring absorption capacity. Areas of permanent disturbance would also be returned to pre-disturbance conditions by removing Project infrastructure and revegetating, restoring runoff and absorption capacity.

Project decommissioning would have an indirect impact on runoff and absorption capacity. Removal of the permanent disturbance features such as wind turbine footings, would remove impervious ground in the Lease Boundary and would be a benefit to the area.

Floodplains

Approximately 0.8 acres of land within the 100-year floodplains/Frequently Flooded Areas, which are associated with CARAs, occur within disturbance areas of the Micrositing Corridor. These are associated with transmission line. Proposed mitigation would include spanning the 100-year floodplain to avoid temporary disturbance as described in Section 4.4.2.1. Therefore, Project decommissioning would also not require site clearing.

Physical disturbance of floodplains from the solar arrays, BESS, and substations would not occur during Project decommissioning; therefore, impacts are not assessed further. The physical disturbance of floodplains from the comprehensive Project would be the same as within the Micrositing Corridor as this would be the only location where floodplains would be impacted.

Groundwater

Project decommissioning would result in the temporary disturbance of 1.6 acres of alluvial soils associated with CARAs (Horse Heaven Wind Farm, LLC 2022). While groundwater would not be directly impacted, it could be indirectly impacted through loss of associated alluvial soil. Less than 1 percent of alluvial soils within the Lease Boundary would be disturbed during Project decommissioning. The temporary disturbance of 1.6 acres of alluvial soils within the Micrositing Corridor would be considered an indirect impact on groundwater resources.

No other Project components would result in physical disturbance to groundwater resources; therefore, the impacts would be negligible and are not assessed further. Impacts that would result from the comprehensive Project would be the same as impacts from within the Micrositing Corridor.

Water Quality

Surface Water

Project decommissioning activities such as clearing and soil stockpiling for temporary access could result in impacts on water quality. Impacts on surface water quality could occur where construction activities interact with ephemeral and intermittent streams. Impacts on surface water quality would be similar to those discussed in Section 4.4.2.1 for Project construction.

Only the Micrositing Corridor would require temporary disturbance of surface water for construction, and it is therefore assumed that this same area would be required during the decommissioning stage of the Project. The temporary disturbance of ephemeral and intermittent streams would have the potential to impact water quality. Impacts on water quality from within the Micrositing Corridor are considered a direct impact.

In addition, ephemeral stream channels were identified in the East Solar Field and Sellards Solar Field as described in Section 3.4, Table 3.4-2. While these stream channels would not be directly disturbed, there is potential that decommissioning could impact water quality within the channels through runoff. These two solar fields would have a direct impact on water quality.

No streams or wetlands would occur within the County Well Solar Field, BESS, or substations sites; therefore, impacts on water quality from Project decommissioning would not be expected and are not assessed further. Impacts of the comprehensive Project are rated the same as Turbine Option 1 and Option 2, as this incorporates the area of greatest potential impact.

Hydrology

Surface Water

The impacts of Project decommissioning on the hydrology of ephemeral and intermittent streams would be similar to the temporary disturbance during Project construction, as discussed in Section 4.4.2.1. No permanent disturbance would occur during Project decommissioning. The removal of the culvert on the intermittent stream within the Micrositing Corridor during decommissioning should restore the stream hydrology.

Where Project decommissioning would impact ephemeral and intermittent streams, there would be potential for impacts on hydrology. For Project decommissioning, it is assumed that this would be required within the Micrositing Corridor, similar to the construction stage of the Project. Project decommissioning would have a direct impact on hydrology within the Micrositing Corridor.

Decommissioning of the solar arrays, BESS, and substations would not result in temporary disturbance of ephemeral and intermittent streams; therefore, no impacts are anticipated, and the Project components are not assessed further. The impacts from the comprehensive Project would be the same as those within the Micrositing Corridor.

Introduction of Hazardous Substance

Surface Water

Hazardous substances required for Project decommissioning would be similar to those required for Project construction. The potential impacts and sources are discussed in Section 4.4.2.1. Impacts of the introduction of hazardous substances on surface water are rated separately within the Micrositing Corridor from other Project components because Project decommissioning would require temporary disturbance within ephemeral and intermittent streams within the Micrositing Corridor. For all Project components, the introduction of hazardous substances would be a direct impact.

Floodplains

Project decommissioning could result in a spill of a hazardous substance that has the potential to impact floodplains. Impacts of spills on floodplains and their sources are discussed in Section 4.4.2.1. Accidental release of hazardous substances could occur for any Project component, but only the Micrositing Corridor would have the potential to impact floodplains in the Lease Boundary. Accidental release of hazardous substances would be a direct impact.

The solar arrays, substations, and BESS do not overlap with floodplains, and impacts from an accidental spill are not anticipated. These Project components are not assessed further. The impacts of the comprehensive Project are rated the same as within the Micrositing Corridor.

Groundwater

Project decommissioning could result in the introduction of hazardous substances, although this would be unlikely to impact groundwater, for the reasons discussed in Section 4.4.2.1. Diesel products and hydrocarbons range in their chemical composition. Diesel and other hydrocarbon products readily penetrate porous substances such as soil (API 2016). The movement of hazardous substances through porous soil would have the potential to impact groundwater. If hazardous substances were to contact groundwater, there would be potential impacts on water quality, water chemistry, and downstream areas. The greatest area of potential for an impact would be areas of alluvial soils associated with CARAs within the Micrositing Corridor.

Depth to water in the Lease Boundary averages 184 feet. As noted above, sources for accidental spills are anticipated to be small point sources, and spill response equipment would be available on site. The effectiveness of on-site spill response equipment would largely depend on the training of the Applicant's contractors conducting the decommissioning activities. It is not anticipated that decommissioning of any Project components would result in a spill that impacts groundwater, and this impact is not assessed further.

Impacts on Public Water Supply during Drought or Water Shortage

Estimates of water supply required for Project decommissioning are not provided in the 2022 ASC. However, the total amount of water required per year during decommissioning is anticipated to be less than for Project construction, which is estimated to be 120 million gallons per year (Horse Heaven Wind Farm, LLC 2022). This is because certain activities, such as concrete pouring, would not be required during decommissioning. However, some activities, such as fugitive dust control, would still require water. Prior to Project decommissioning, the Applicant would provide EFSEC with an estimate of the amount of water required for all decommissioning activities.

Turbine Option 1 and Turbine Option 2

- **Physical Disturbance**: The impact of physical disturbance on water resources is rated low magnitude. The duration is rated short term as the disturbance areas would be returned to pre-disturbance conditions following decommissioning. The likelihood is rated unavoidable. While temporary disturbance areas would be required for decommissioning, mitigation measures would reduce the likelihood of impact. The spatial extent is rated confined within the Lease Boundary, due to the size of temporary disturbance required to remove the wind turbines.
- **Water Quality**: Impacts on water quality are rated low magnitude. The duration of impact is rated as temporary as the impact would only affect water quality if water were present in the streams. The likelihood of impacts is rated as unlikely, as mitigation measures would minimize the risk. The spatial extent of the impact would be local because impacts on water quality could impact downstream environments outside the Lease Boundary.
- **Hydrology**: Impacts on hydrology are rated low as areas of permanent disturbance and temporary disturbance would be restored to pre-disturbance conditions. The duration of the impacts is rated short term. The likelihood of impacts is rated as unlikely because of proposed mitigation measures. The spatial extent would be limited to a small area of the Lease Boundary where the Micrositing Corridor intersect ephemeral and intermittent streams.
- **Introduction of Hazardous Substances**: Impacts from the introduction of hazardous substances are rated low magnitude. The duration would be temporary as effective mitigation measures and spill response equipment on site could quickly address a spill, provided that site personnel are trained on, and equipped to perform, deploy and use spill response equipment. The likelihood is rated as unlikely. The spatial extent has the potential to be local and extend beyond the Lease Boundary during high-rainfall events or the wet season.
- **Impacts on Public Water Supply**: The impact on water supply would be direct. Impacts are rated as low magnitude. The duration would be temporary as water would be required for decommissioning, but impacts would only be anticipated during drought or water shortage. The likelihood is rated as unlikely as adjustments to schedule for the decommissioning activities could alleviate demand on public water supply. The spatial extent is regional as potential for impacts on public water supply could impact the regional scale.

Solar Arrays

- **Physical Disturbance**: The impact from physical disturbance during decommissioning is rated low magnitude. Areas of modified habitat under the solar arrays would require disturbance, including vegetation clearing and soil disturbance, to remove the solar arrays. This could impact absorption capacity. The duration is rated short term as revegetation would occur following decommissioning. The likelihood is rated as unavoidable. The spatial extent is rated as confined.
- **Water Quality**: For the solar arrays, the impacts on water quality are rated as negligible magnitude because water would be intercepted by vegetated buffers and would likely infiltrate the ground before entering a watercourse. The duration of impacts is rated temporary as the impact would only affect water quality if water were present in the streams. The likelihood of impacts on water quality is rated as unlikely, as mitigation measures would reduce the risk. The spatial extent of the impact on water quality would be local because impacts on water quality could impact downstream environments outside the Lease Boundary.
- **Hydrology**: No impacts on hydrology are anticipated, and no further assessment is required.
- **Introduction of Hazardous Substances**: Impacts from introduction of hazardous substances are rated negligible magnitude. No work would occur directly in a stream. Any accidental release is anticipated to be small and would be contained by trained site personnel using spill response equipment. The duration would be temporary, as effective mitigation measures could address a spill quickly. The likelihood is rated as unlikely. The spatial extent would be limited as movement beyond the initial release point would not be anticipated.
- **Impacts on Public Water Supply**: The impact ratings are identical to the wind turbines. Impacts are rated low magnitude, and the duration would be temporary. The likelihood is rated as unlikely. The spatial extent is regional.

Battery Energy Storage Systems

- **Physical Disturbance**: Impacts from physical disturbance are rated low magnitude. Small areas of vegetation clearing and soil disturbance would be required to remove the BESS. The duration would be short term as soil replacement and revegetation would occur following decommissioning. The likelihood is unavoidable. The spatial extent is limited.
- **Water Quality**: There are no anticipated impacts on surface waters, and no further assessment is required.
- **Hydrology**: There are no anticipated impacts on surface waters, and no further assessment is required.
- **Introduction of Hazardous Substances**: Impact ratings are identical to the solar arrays. Impacts are rated negligible magnitude. The duration is rated temporary. The likelihood is rated as unlikely. The spatial extent is rated limited.
- **Impacts on Public Water Supply**: Impacts on public water supply are identical to those anticipated for the wind turbines. Impacts are rated low magnitude. The duration is rated temporary, and the likelihood is rated as unlikely. The spatial extent is rated regional.

Substations

- **Physical Disturbance**: Impact ratings are identical to those anticipated for the BESS. The impact from physical disturbance is rated low magnitude. The duration is rated as short term. The likelihood is unavoidable. The spatial extent is limited.
- **Water Quality**: No impacts on surface waters are anticipated, and no further assessment is required.
- **Hydrology**: No impacts on surface waters are anticipated, and no further assessment is required.
- **Introduction of Hazardous Substances**: Impact ratings are rated identical to those anticipated for the solar arrays. Impacts are rated negligible in magnitude. The duration is rated temporary. The likelihood is rated as unlikely. The spatial extent is rated limited.
- **Impacts on Public Water Supply:** Impacts on public water supply are identical to the wind turbines. Impacts are rated low magnitude. The duration would be temporary. The likelihood is rated as unlikely. The spatial extent is regional.

Comprehensive Project

- **Physical Disturbance**: Impact ratings are identical to those anticipated for the wind turbines. The physical disturbance is rated low magnitude, and the duration is rated short term. The Project would require temporary disturbance but would be revegetated following decommissioning. The likelihood is rated unavoidable, and the spatial extent is rated confined.
- **Water Quality**: Impacts on surface waters are rated low magnitude, and the duration of impact is rated as temporary. The likelihood of impacts is rated as unlikely, and the spatial extent of the impact is rated as local.
- **Hydrology**: Impacts on hydrology are rated low, and the duration of the impacts would be short term. The likelihood of impacts is rated unlikely, and the spatial extent is rated limited.
- **Introduction of Hazardous Substances**: Impacts from the introduction of hazardous substances would be identical to those anticipated for the wind turbines. The impacts are rated low, temporary, unlikely, and local.
- **Impacts on Public Water Supply**: Impacts on public water supply are rated low magnitude. Construction of the comprehensive Project was rated medium; however, less water is anticipated for decommissioning as no concrete mixing would be required. The duration is rated temporary. The likelihood is rated as unlikely, and the spatial extent is regional.

4.4.2.4 Recommended Mitigation Measures

This section describes measures that would reduce or compensate for impacts related to water resources from construction, operation, and decommissioning of the Project. EFSEC has identified the following mitigation measures for the Project to avoid and/or minimize impacts on water resources. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action.

W-1:[24] **Least Risk Fish Windows:** Project construction and decommissioning within ephemeral and intermittent streams would observe the least risk windows for spawning and incubating salmonoids, which are,

[24] W-: Identifier of numbered mitigation item for Water

conservatively, August 1 to September 15 for the Yakima and Columbia Rivers and their tributaries in Benton County (WDFW 2018).

Rationale: This mitigation measure addresses potential impacts on surface water and fish habitat and would minimize risk to aquatic species.

W-2: Minimize Work in Heavy Rain: Project construction and decommissioning would be minimized during rainy periods and heavy rain—in particular, work near ephemeral or intermittent streams.

Rationale: This mitigation measure addresses potential impacts of surface water and runoff and would minimize the risk of sediment release to surface water and wetlands.

W-3: Check Dams: As indicated in Ecology (2019) BMP C207E, check dams cannot be placed or used in streams unless approved by WDFW. Check dams used for work within ephemeral or intermittent streams would be approved by EFSEC in coordination with WDFW and Ecology prior to use. Stream crossing designs and associated mitigation plans would be provided and approved by EFSEC in coordination with WDFW and Ecology.

Rationale: This mitigation measure addresses the use of check dams on site, which would require approval by WDFW and Ecology prior to use.

W-4: Culvert Installation BMPs: Based on the ASC, one culvert is proposed along one intermittent stream. Installation of the culvert would follow U.S. Department of Agriculture BMPs:

- Be oriented and aligned with the natural stream channel.
- Be constructed at or near natural elevation of the streambed to avoid or minimize potential flooding upstream of the crossing and erosion below the outlet.
- Use suitable measures to avoid or minimize water from seeping around the culvert.
- Use suitable measures to avoid or minimize culvert plugging from transported debris or bedload.
- Be regularly inspected and cleaned as necessary for the life of the Project (USDA 2012).
- Cover culvert with sufficient fill to avoid or minimize damage by traffic.
- Install culverts long enough to extend beyond the toe of the fill slopes to minimize erosion.

Rationale: This mitigation measure addresses permanent impacts on ephemeral streams. It provides specifications on culvert installation to enable assessment of the potential impacts.

W-5: Employee Training: An employee training plan would be included as part of the SPCC Plan. For the duration of the Project, employees and workers on site would receive appropriate training according to the employee training plan to ensure that any spills are reported and responded to in an appropriate manner (Ecology 1999). This would include training on the use of spill response equipment and orientations identifying the location of hazardous materials, proper storage of hazardous materials, and location of spill response equipment to ensure that workers are competent in spill response.

Rationale: This mitigation measure addresses potential impacts on water quality, including sedimentation and accidental spill. Employee training reduces the risk of human error and increases confidence in the effectiveness of spill response in the event of accidents such as accidental spills.

W-6: Wetland SWPPP: A Stormwater Pollution Prevention Plan (SWPPP) would be designed specifically for work within the Micrositing Corridor adjacent to the wetland (Figure 3.4-1, Section 3.4). The SWPPP would include BMPs from the Stormwater Management Manual for Eastern Washington (Ecology 2019). The plan would include, but not be limited to, structural measures such as installation of silt fences and sediment ponds, and non-structural measures, including routine inspection and maintenance and enforcement of BMPs, to minimize surface water runoff generated from the construction activities to the wetland.

Rationale: This mitigation measure addresses potential impacts on the wetland situated near the Micrositing Corridor. The wetland is located downgradient from the construction area, so additional mitigation measures are proposed to avoid impacts.

W-7: Clear-Span 100-Year Floodplain: Clear-span the transmission line to avoid temporary disturbance to the 100-year flood plain. Site transmission line poles outside the 100-year floodplain.

Rationale: This mitigation measure addresses physical disturbance of the 100-year floodplain, a CARA.

W-8: Spill Response Equipment: Spill response equipment would be stored in every vehicle accessing the site during construction, operation, and decommissioning. In addition, an oil pan would be placed below heavy equipment when stored or not in use on site.

Rationale: This mitigation measure addresses spill response impacts by specifying locations for spill response equipment.

W-9: Minimize Water Use: During construction, operation, and decommissioning, water use would be minimized where possible. During drought or water shortage, schedule adjustment would be considered to minimize water needs on the site, where possible, or additional alternate off-site water supplies would be identified.

Rationale: The mitigation measure addresses impacts on public water supply to minimize water use on site throughout the life of the Project.

W-10: Panel Washing: During drought or water shortage, panel washing would be postponed or alternate off-site water sources could be identified to minimize impacts on public water supply. Panel wash water would be recycled and re-used where possible during operation.

Rationale: This mitigation measure addresses impacts on public water supply to minimize water use on site from panel washing, if required.

W-11: Concrete Batch Plant to Avoid Streams: Laydown areas or locations where temporary concrete batch plants will be sited should be a minimum of 100 ft from mapped streams or waterbodies.

Rationale: Siting temporary concrete batch plants outside of stream and riparian areas reduces the potential impacts off accidents and malfunctions from release of concrete wash water on water quality.

4.4.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The

effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023b). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Siting Area size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and consider undergrounding transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[25]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary

[25] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

The location of construction laydown areas within the Lease Boundary were modified in the Final ASC and one additional laydown area was added. The construction laydown areas have been identified as locations for the concrete batch plant. Concrete wash water has elevated pH and has the potential to impact water quality. None of the laydown areas overlap known or mapped streams. **Table 4.4-3** provides the distance to the nearest stream for each of the laydown areas.

Table 4.4-3: Distance of Construction Laydown Areas to Nearest Stream

Construction Laydown Area	Distance to Nearest Stream (ft)
East Laydown - Tentative Construction Laydown Yard – Phase 1	116
East Laydown - Construction Laydown Yard – Phase 1	804
West Laydown	158

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remain. The additional Applicant commitments identified above do not change the impact ratings previously provided for water resources in the Draft EIS, and the impact ratings remain the same.

4.4.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which in turn depends on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (Washington Administrative Code 197-11-794).

This EIS weighs the impacts on water resources use that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.4-4a, 4.4-4b, and 4.4-4c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to water resources.

Table 4.4-4a: Summary of Potential Impacts on Water Resources during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Physical Disturbance	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project construction would require temporary and permanent disturbance, which could impact surface water and wetlands, surface runoff/absorption, floodplains, and groundwater.	Low	Short Term (for temporary disturbance) Long Term (for permanent disturbance)	Unavoidable	Confined	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-4:** Culvert Installation BMPs **W-6:** Wetland SWPPP **W-7:** Clear-span 100-Year Floodplain **W-11:** Concrete Batch Plant to Avoid Streams	None identified
Physical Disturbance	Solar Arrays	Project construction would require temporary and permanent disturbance, which could impact surface water and wetlands, surface runoff/absorption, floodplains, and groundwater.	Low	Short Term	Unavoidable	Confined	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-4:** Culvert Installation BMPs **W-6:** Wetland SWPPP **W-7:** Clear-span 100-Year Floodplain	None identified
Physical Disturbance	BESS Substations	Project construction would require temporary and permanent disturbance, which could impact surface water and wetlands, surface runoff/absorption, floodplains, and groundwater.	Low	Short Term (for temporary disturbance) Long Term (for permanent disturbance)	Unavoidable	Limited	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-6:** Wetland SWPPP	None identified
Change in Water Quality	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project construction could result in a change to water quality of waterways that intersect or are located adjacent to Project construction activities.	Low	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-5** Employee Training **W-6:** Wetland SWPPP **W-8:** Spill Response Equipment	None identified
Change in Water Quality	Solar Arrays	Project construction activities could result in a change to water quality of waterways adjacent to Project construction activities.	Negligible	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-5:** Employee Training **W-6:** Wetland SWPPP **W-8:** Spill Response Equipment **W-11:** Concrete Batch Plant to Avoid Streams	None identified
Change in Hydrology – Temporary Disturbance	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Temporary disturbance from Project construction within ephemeral and intermittent streams could result in changes to the hydrology of waterways.	Low	Short Term	Unlikely	Limited	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-4:** Culvert Installation BMPs	None identified
Change in Hydrology – Permanent Disturbance	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project construction would require a culvert installation on one intermittent stream that could result in changes to the hydrology of the stream.	Low	Long Term	Unavoidable	Limited	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-4:** Culvert Installation BMPs	None identified

Table 4.4-4a: Summary of Potential Impacts on Water Resources during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Introduction of Hazardous Substances	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project construction could result in the introduction of hazardous substances that could impact surface water and wetlands, floodplains, and groundwater.	Low	Temporary	Unlikely	Local	**W-7:** Employee Training **W-8:** Spill Response Equipment	None identified
Introduction of Hazardous Substances	Solar Arrays BESS Substations	Project construction could result in the introduction of hazardous substances that could impact surface water and wetlands, floodplains, and groundwater.	Negligible	Temporary	Unlikely	Limited	**W-3:** Concrete Wash-out Area **W-5:** Employee Training **W-8:** Spill Response Equipment	None identified
Public Water Supply	**Comprehensive Project**	Project construction activities would rely on water sourced from local public facilities, local private irrigators, and/or collector wells fed from regional aquifers.	Medium	Temporary	Feasible	Regional	**W-9:** Minimize Water Use	None identified
Public Water Supply	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Project construction activities would rely on water sourced from local public facilities, local private irrigators, and/or collector wells fed from regional aquifers .	Low	Temporary	Feasible	Regional	**W-9:** Minimize Water Use	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Site Evaluation Council

Table 4.4-4b: Summary of Potential Impacts on Water Resources during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Panel Washing	Solar Arrays **Comprehensive Project**	Project operations would require water to wash solar array panels, which would infiltrate the surrounding ground and could impact water resources.	Negligible	Temporary	Unlikely	Confined	**W-9:** Minimize Water Use **W-10:** Panel Washing	None identified
Surface Water Runoff from Impervious Surfaces	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project operations would increase impervious surfaces, which could lead to increased water runoff to water resources.	Low	Temporary	Unlikely	Local	No mitigation identified	None identified
Introduction of Hazardous Substances	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project operations could result in the accidental release of hazardous substances that could impact water resources.	Negligible	Temporary	Unlikely	Limited	**W-5:** Employee Training **W-8:** Spill Response Equipment	None identified
Impacts on Public Water Supply	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Project operations would rely on water from public water supply for operations.	Low	Temporary	Feasible	Regional	**W-9:** Minimize Water Use **W-10:** Panel Washing	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
EFSEC = Washington Energy Facility Siting Evaluation Council

Table 4.4-4c: Summary of Potential Impacts on Water Resources during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Physical Disturbance	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Project decommissioning would result in physical disturbance that could impact surface water and wetlands, runoff and absorption capacity, floodplains, and groundwater resources.	Low	Short Term	Unavoidable	Confined	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-6:** Wetland SWPPP	None identified
Physical Disturbance	BESS Substations	Project decommissioning would result in physical disturbance that could impact surface water and wetlands, runoff and absorption capacity, floodplains, and groundwater resources.	Low	Short Term	Unavoidable	Limited	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-6:** Wetland SWPPP	None identified
Change in Water Quality	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project decommissioning would require temporary disturbance, which could impact water quality.	Low	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-5:** Employee Training **W-6:** Wetland SWPPP **W-8:** Spill Response Equipment	None identified
Change in Water Quality	Solar Arrays	Project decommissioning would require temporary disturbance areas to access and remove Project components located near ephemeral and intermittent streams and could result in changes to water quality.	Negligible	Temporary	Unlikely	Local	**W-1:** Least Risk Fish Windows **W-2:** Minimize Work in Heavy Rain **W-3:** Check Dams **W-5:** Employee Training **W-6:** Wetland SWPPP **W-8:** Spill Response Equipment	None identified
Change in Hydrology	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project decommissioning would require temporary disturbance to some ephemeral and intermittent streams but would restore the disturbance areas following decommissioning.	Low	Short Term	Unlikely	Limited	**W-3:** Check Dams	None identified
Introduction of Hazardous Substances	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project decommissioning could result in the introduction of hazardous substances to water resources.	Low	Temporary	Unlikely	Local	**W-5:** Employee Training **W-8:** Spill Response Equipment	None identified
Introduction of Hazardous Substances	Solar Arrays BESS Substations	Project decommissioning could result in the introduction of hazardous substances to water resources.	Negligible	Temporary	Unlikely	Limited	**W-5:** Employee Training **W-8:** Spill Response Equipment	None identified

Table 4.4-4c: Summary of Potential Impacts on Water Resources during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Impacts on Public Water Supply	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Project decommissioning could result in impacts on public water supply.	Low	Temporary	Unlikely	Regional	**W-9:** Minimize Water Use	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
CARA = critical aquifer recharge area; EFSEC = Washington Energy Facility Siting Evaluation Council

4.4.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to water resources from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.5 Vegetation

This section describes the potential impacts on vegetation resources identified in Section 3.5 that would result from the construction, operation, and decommissioning of the proposed Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative.

The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and shown in **Table 4.5-1**. Acreage impacts presented in this section were calculated independently from the spatial data provided by Horse Heaven Wind Farm, LLC (Applicant).

Table 4.5-1: Impact Rating Table for Vegetation from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Three vegetation resources are the focus of this assessment, as described below. The term ‘habitat’ is used below to describe ecosystems to be in alignment with the Washington Department of Fish and Wildlife’s (WDFW) terminology which uses the terms Priority Habitat (WDFW 2008, 2009) and the Application for Site Certification (ASC), which provided “habitat mapping” for the Lease Boundary.

- **Priority Habitat** - Designated by WDFW to conserve and protect identified ecosystems. Priority Habitat that may be impacted by the Project includes Eastside Steppe Priority Habitat and Shrub-steppe Priority Habitat. Habitat subtypes classified by the Applicant during field surveys considered Priority Habitat include the Eastside (interior) grassland, dwarf shrub-steppe, and sagebrush shrub-steppe. Priority Habitat has been

assessed separately from other habitat because seven Priority Habitats have been identified for conservation and management by WDFW.

- **Other habitats** - Includes other vegetated areas that are not identified for conservation or management but still provide ecosystem functions such as intercepting water and sediment, contributing organic matter to soil, or providing habitat for plant species. Other habitats include the habitat subtypes rabbitbrush shrubland, non-native grassland, and planted grassland, which are not actively managed and have the potential to progress to natural ecosystems. While agriculture land may provide wildlife habitat, active vegetation management precludes it from being considered within the vegetation section. Developed and disturbed habitat subtype generally lacks vegetation and is therefore not considered a habitat for plants.
- **Potential loss of special status plant species and their habitat** - Considers known locations of special status plant species, habitat suitability mapping provided by the Applicant, and habitat descriptions available for special status plant species. A special status plant species is defined as a federally or state-listed endangered, threatened, or sensitive vascular, non-vascular, or lichen species.

Habitats provide ecosystem values and functions. To assess the magnitude of an impact on habitat, the impact must be considered within the context of the landscape. The detailed rating scale for magnitude of impacts on Priority Habitat, other habitat, and special status plant species is provided in **Table 4.5-2**.

It has been argued that there is a critical threshold at which habitat loss impacts a species' resilience, or ability to recover from a disturbance, even if it is an incremental change. Some theories propose that the reasons for this threshold are: 1) changes in the configuration of habitat affect species' ability to migrate; 2) smaller patches of habitat result in a greater amount of edge habitat, leading to habitat degradation; 3) and genetic effects become more pronounced in small populations (Swift and Hannon 2010). Studies vary widely in their conclusions regarding what the critical threshold for habitat loss may be and are dependent on the resilience of the species and habitat (Swift and Hannon 2010).

Priority Habitat is already rare within the Lease Boundary and may already be within the critical threshold for loss. Within their historic range, shrub-steppe ecosystems are estimated to be 80 percent lost or degraded (WDFW 2022). Evaluation of the magnitude of impact on Priority Habitat considered whether the impact could push Priority Habitat beyond the critical threshold for loss.

Incremental loss of agricultural land and developed/disturbed land is not considered an impact on vegetation resources. Loss of other habitat includes all other habitat except Priority Habitat (evaluated separately), agriculture land, and developed/disturbed areas. While these other habitats have been modified due to anthropogenic activities on site, they may provide suitable habitat for some native species to persist. To determine the magnitude of impact on other habitat, the impacts were evaluated to determine whether they would push the other habitat beyond a critical threshold for loss.

Table 4.5-2: Criteria for Assessing Magnitude of Impacts on Vegetation Resources

Magnitude of Impact	Description
Negligible	**Priority Habitat:** The Project would avoid impacts on Priority Habitat during siting, and degradation of Priority Habitat is not anticipated. **Other Habitat:** Impact on other habitat would be indistinguishable from existing conditions. **Special Status Plant Species:** The Project would avoid suitable or potentially suitable habitat for special status plant species.
Low	**Priority Habitat:** The Project would result in the loss of Priority Habitat, but impacts are not anticipated to alter the ecological function of the Priority Habitat. Project impacts would leave patches largely intact, with impacts concentrated on the edge, and no impact on the central core, of a Priority Habitat patch. Further degradation of habitat beyond the edges would not be anticipated. Impacts would be reversible with restoration and management. **Other Habitat:** The Project would result in loss of other habitat, but the incremental change is not anticipated to alter the composition or resilience of populations of native plants. Other habitat patches would remain connected through corridors. Increase in developed/disturbed areas would not alter the functionality of other habitat relative to existing conditions. **Special Status Plant Species:** The Project would be located in suitable habitat for special status plant species that are known to occur in the Vegetation Area of Analysis, but impacts occur in marginal habitat and avoid known populations.
Medium	**Priority Habitat:** The Project would result in a moderate loss of Priority Habitat, which may alter some ecological functions. Impacts would occur mainly on the edges of Priority Habitat patches. Further degradation of habitat would be expected and would result in a moderate degree of alteration. **Other Habitat:** The Project would result in a moderate loss of other habitat, causing fragmentation, and could impact the persistence of native plants in some patches. An increase in developed/disturbed areas would be evident from existing conditions but is unlikely to alter ecological function. **Special Status Plant Species:** The Project would impact suitable habitat for plant species at risk known to occur in the Vegetation Area of Analysis.
High	**Priority Habitat:** The Project would result in a loss of core areas of Priority Habitat, resulting in loss of ecological functions and habitat fragmentation. Further degradation of habitat would be expected from edges and extend to the core resulting in a high degree of alteration. **Other Habitat:** The Project would result in conversion of core areas of other habitat (e.g., paving). Areas of other habitat would become fragmented within the landscape, minimizing the ability for plants to disperse. Increase in impermeable surfaces would be large relative to existing conditions. **Special Status Plant Species:** The Project would directly impact a known population of special status plant species, resulting in the potential loss of a known population.

For the purpose of this section, the spatial extent of limited and confined described in **Table 4.5-1** are defined as follows, where the area can be quantified and is proportional to impacts:

- **Limited:** small areas of the Lease Boundary defined as less than 100 acres
- **Confined:** to distinguish from limited, confined is defined as greater than 100 acres but less than the total area of the Lease Boundary

Impacts on special status plant species are rated locally. Direct impacts of the loss of a subpopulation are considered confined to the Lease Boundary where disturbance is planned. However, loss of a subpopulation could result in indirect impacts at the local scale through loss of genetic diversity and vulnerability to stochastic events.

4.5.1 Method of Analysis

The study area for vegetation consists of the Lease Boundary and a 2-mile area around the Lease Boundary, referred to as the Vegetation Area of Analysis, which is consistent with the assessment area for Wildlife and Wildlife Habitat (Section 4.6). Laws and regulations for determining potential impacts on vegetation are summarized in Section 3.5, Table 3.5-1.

The habitat mapping and electronic shapefiles provided by the Applicant were used to quantify the area of net change to vegetation due to the Project for each habitat type and disturbance type unless otherwise stated. All impacts on vegetation were also assessed qualitatively, following the methods outlined in Section 4.1.

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on vegetation are discussed in Section 2.1.3 and summarized below.

The Applicant has provided the following commitments (Horse Heaven Wind Farm, LLC 2021a, 2022).

- Project facilities were sited on previously disturbed (e.g., cultivated cropland) areas to the extent feasible to avoid impacts on native habitats and associated wildlife species.
- The Project layout has evolved over time to site turbines at a greater distance from the Columbia River. In the early stages of siting, numerous steps were also taken to optimize the layout to maximize energy generation potential while minimizing impacts on resources, such as avoidance of Bureau of Land Management lands to the northwest. Noise impacts, impacts on Department of Defense radar facilities, and impacts on habitat all were considered and resulted in modification of the Project layout to reduce or avoid impacts on these resources. In addition, the Project has been designed to accommodate availability of interested landowners and availability of transmission lines with capacity to transmit power. A proposed point of interconnection with the Bonneville Power Administration (BPA) grid at Red Mountain was abandoned, primarily due to concerns associated with agricultural and viewshed interests. Early Project layouts went through multiple iterations as each of these separate factors were considered in conjunction with the others.
- More specifically with regard to habitat and vegetation, preliminary (desktop) habitat mapping was done to identify priority habitats, and to the extent possible, these were avoided in developing turbine and solar layouts. As the final design is developed, further refinement would occur to continue to reduce impacts on all resources where possible, while still meeting the Project's purpose to generate clean renewable energy.
- In general, the majority of the Project would be sited in cultivated lands; 80 percent of the Micrositing Corridor and 79 percent of the Solar Siting Areas are on developed or disturbed land. Based on the preliminary layout as presented in the ASC, within the Micrositing Corridor 85 percent of permanent disturbance would be on developed or disturbed land, while permanent disturbance to shrubland has been limited to 4 percent of the total disturbance area. The preliminary solar layout would also be primarily sited

on agriculture land to minimize disturbance to habitat and vegetation, with 84 percent of permanent and modified disturbance occurring on this habitat type.

- Because the majority of this area is already farmed where the topography is suitable, prioritizing land that would be most suitable for solar development (generally flat) results in minimizing impacts on priority habitats. However, in a few cases the highest value wind resource coincides with uncultivated land, and three wind turbines would be retained on shrub-steppe land for this reason while other sites under consideration were dropped to reduce impacts. To the extent practicable, during final design, impacts on shrub-steppe land in the western portion of the Bofer Canyon Solar Siting Areas would be minimized because this is where the majority of solar impacts on rabbitbrush shrubland occur.
- Turbines were not placed in topographic low points, drainages, or swales where shrub-steppe habitat is common. The Project layout was also revised in 2020 to minimize impacts on shrub-steppe habitat in the northeastern portion of the Project area following baseline surveys conducted in 2020. Additional leases and portions of leases were terminated to reduce the Project footprint east of the Project site along the Columbia River.
- To minimize impacts on wildlife, baseline studies were conducted for the Project consistent with the WDFW Wind Power Guidelines (WDFW 2009), the U.S. Fish and Wildlife Service's 2012 Final Land-Based Wind Energy Guidelines (USFWS 2012), the 2013 U.S. Fish and Wildlife Service (USFWS) Eagle Conservation Plan Guidance Module 1 – Land Based Wind Energy (USFWS 2013), and the USFWS 2016 Eagle Rule Revision (USFWS 2016). The Applicant used the results of these baseline studies to inform the Project's layout design to mitigate and avoid impacts on wildlife resources.
- The Project would use industry standard best management practices (BMPs) to minimize impacts on vegetation, waters, and wildlife.
- Sagebrush shrub-steppe habitat would be avoided to the extent possible. If avoidance is not possible, mitigation for impacts on sagebrush shrub-steppe habitat would be developed in consultation with the applicable agencies.
- If special status plant species are observed during preconstruction surveys, individuals and populations would be avoided to the extent possible. If avoidance is not possible, mitigation measures for impacts would be developed in consultation with the applicable agencies.
- The Applicant would limit construction disturbance by flagging any sensitive areas (e.g., wetlands, rare plant populations) and would conduct ongoing environmental monitoring during construction to ensure flagged areas are avoided.
- To minimize the impact of hazardous substances, a detailed Spill Prevention, Control, and Countermeasures Plan would be prepared by the Balance of Plant contractor and submitted to the Washington Energy Facility Site Evaluation Council (EFSEC) for review and approval. Spill kits would be stored on site at temporary and permanent locations.
- A Temporary Erosion and Sediment Control (TESC) plan would be developed and implemented, detailing specific BMPs that would be used and where they would be placed, as well as the total disturbance area. The TESC plan would include measures to prevent erosion, contain sediment, and control drainage. The TESC plan would also include installation details of the BMPs, as well as notes.

- A Stormwater Pollution Prevention Plan (SWPPP) would be developed, detailing the activities and conditions at the site that could cause water pollution, and the steps the facility would take to prevent the discharge of any unpermitted pollution.
- Clearing, excavation, and grading would be limited to the parts of the Project area where these activities are necessary for construction and decommissioning of the Project. Areas outside the construction limits would be marked in the field, and equipment would not be allowed to enter these areas or disturb existing vegetation. To the extent practicable, existing vegetation would be preserved. Where vegetation clearing is necessary, root systems would be conserved if possible.
- Vegetated areas that are disturbed or removed during construction would be restored as near as reasonably possible to pre-disturbance conditions.
- Excavated soil and rock from grading would be spread across the site to the natural grade and would be reseeded with native grasses to control erosion by water and wind.
- Silt fencing would be installed throughout the Project as a perimeter control, and on the contour downgradient of excavations, the operations and maintenance facilities, and substations.
- Straw wattles would be used to decrease the velocity of sheet flow stormwater to prevent erosion. Wattles would be used along the downgradient edge of access roads adjacent to slopes or sensitive areas.
- Mulch would be used to immediately stabilize areas of soil disturbance and during reseeding efforts.
- Jute matting, straw matting, or turf reinforcement matting would be used in conjunction with mulching to stabilize steep slopes that were exposed during access road installation.
- Soil binders and tackifiers would be used on exposed slopes to stabilize them until vegetation is established.
- Concrete chutes and trucks would be washed out in dedicated areas near the foundation construction locations. This would prevent concrete washout water from leaving a localized area. Soil excavated for the concrete washout area would be used as backfill for the completed footing to ensure that the surface soils maintain infiltration capacity.
- Watering or other fugitive dust-abatement measures would be used as needed to control fugitive dust generated during construction.
- Construction materials that could be a source of fugitive dust would be covered when stored.
- Traffic speeds on unpaved roads would be limited to 25 miles per hour to minimize generation of fugitive dust.
- Truck beds would be covered when transporting dirt or soil.
- Active dust suppression would be implemented during construction.
- A dust control plan that identifies management practices and operational procedures to effectively control fugitive dust emissions would be developed and provided to the Benton Clean Air Agency prior to construction.

- Replanting or graveling disturbed areas would be conducted during and after construction to reduce wind-blown dust.
- The Applicant does not anticipate using pesticides during Project construction or operation. If unforeseen circumstances arise that require the use of pesticides, the Applicant would consult with WDFW and EFSEC regarding use of pesticides to avoid and minimize impacts on burrowing owl (*Athene cunicularia*) (per Larsen et al. 2004).
- To the extent practicable, during final design, impacts on shrub-steppe land in the western portion of the East Solar Field would be minimized because this area contains a large portion of the rabbitbrush shrubland that would be impacted by the solar arrays.
- To minimize the impact of noxious weeds, the Applicant would implement noxious weed prevention and control as outlined in the Revegetation and Noxious Weed Management Plan (Appendix N, Horse Heaven Wind Farm, LLC 2022). The objective would be to prevent the introduction of new noxious weeds and to control the spread of noxious weeds established on site, which would be applied to construction and operation. BMPs for prevention are described in detail in Appendix N of the 2022 ASC. Control measures would include manual, mechanical, or chemical treatment of noxious weeds. The plan would also include monitoring and reporting, which would be conducted during construction and for a minimum of three years into operations by a qualified investigator.
- To minimize the impact of emergency situations, the Applicant has prepared an Emergency Response Plan (Appendix P, Horse Heaven Wind Farm, LLC 2022) that includes the procedures to follow for potential emergencies, including fire prevention and control in the event of a fire.
- A Revegetation Plan was prepared by the Applicant (Appendix N, Horse Heaven Wind Farm, LLC 2022). The following provides details of the Revegetation Plan that was considered for the impact ratings. The Revegetation Plan describes methods, success criteria, monitoring, and reporting for revegetation of areas that would be temporarily disturbed during construction of the Project. A summary of key measures presented in the Revegetation Plan is provided below.
  - Following construction, temporarily disturbed areas would be revegetated with native plant species, or non-invasive, non-persistent non-native plant species, as described in the Revegetation and Noxious Weed Management Plan. The plan calls for revegetation of agriculture land to occur in consultation with the landowner. Non-agricultural land would be seeded.
  - The Applicant provided four example seed mixes, containing native plants to the area, but the final composition of seed mixes would be determined based on preconstruction conditions and the availability of seed at the time of procurement.
  - Two grassland seed mixes and two shrub-steppe seed mixes are proposed. One seed mix corresponds to species found in the dwarf shrub-steppe, and the second corresponds to species dominant in the sagebrush shrub-steppe. One of the grassland seed mixes is specific for the modified habitat under the solar arrays and includes only low-growing grasses and forbs. The second grassland seed mix contains a combination of grasses and forbs and would be used to re-seed areas that were not previously shrub-steppe or agriculture.

- Modified habitat would be replanted under the solar arrays as described in the Revegetation and Noxious Weed Management Plan. The seed mix identified for the modified habitat includes low-growing grasses and forbs: Sandberg bluegrass (*Poa secunda*), bottlebrush squirreltail (*Elymus elymoides*), prairie junegrass (*Koeleria macrantha*), milkvetch (*Astragalus* sp.), shaggy fleabane (*Erigeron pumilus*), and woolly plantain (*Plantago patagonica*).
- Areas that previously contained dwarf shrub-steppe would be planted with a seed mix appropriate for re-establishing dwarf shrub-steppe, and areas that previously contained sagebrush shrub-steppe would be planted with an appropriate seed mix, detailed in Appendix N of the ASC.
- Revegetation monitoring would be conducted annually for a minimum of three years except in cases where the landowner has converted the areas (e.g., to agriculture land). Following annual monitoring, a monitoring report would be prepared that would include recommendations for remedial actions, if any. Monitoring reports would be submitted to EFSEC within 60 days of the annual monitoring inspection.
- The success criteria identify trigger points that would require modifications to the Revegetation Plan based on the monitoring reports. For example, should total coverage from seeding not meet the success criteria, the environmental monitor may indicate areas that require additional seeding or soil amendments. Remedial action would be identified where the success criteria are not met by Year 3 (for revegetated grassland habitat) or Year 5 (for revegetated shrub-steppe habitat), which may include reseeding, planting with container plants, additional weed control, and other measures as needed.

■ A Habitat Mitigation Plan (Appendix L, Horse Heaven Wind Farm, LLC 2022) has been prepared consistent with the habitat offset requirements outlined in the WDFW Wind Power Guidelines (WDFW 2009). The Habitat Mitigation Plan proposes compensation ratios for temporary and permanent impacts. A summary of the habitat offset ratios is provided in **Table 4.5-3**.

Table 4.5-3: Habitat Offset Ratios Presented by the Applicant for Project Disturbance

Habitat Type	Habitat Class[(a)]	Temporary Disturbance Offset Ratio	Permanent Disturbance Offset Ratio	Modified Habitat Offset Ratio
Agricultural Land	Class IV	N/A	N/A	N/A
Developed/Disturbed	Class IV	N/A	N/A	N/A
Eastside (interior) Grassland (Eastside Steppe)	Class III	0.1:1	1:1	1:1
Non-native Grassland	Class III	0.1:1	1:1	0.5:1
Planted Grassland	Class III	0.1:1	1:1	0.5:1
Dwarf Shrub-steppe	Class II	1:1	2:1	2:1
Rabbitbrush Shrubland	Class II	0.5:1	2:1	2:1
Sagebrush Shrub-steppe	Class II	0.5:1	2:1	2:1

Source: Appendix K, Horse Heaven Wind Farm, LLC 2022
Note:
[(a)] Based on WDFW (2009) habitat classification for mitigation and the class assigned to habitat types in Appendix K, Horse Heaven Wind Farm, LLC (2022).
N/A = not applicable

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.5.2.5, Post-Adjudication Applicant Commitments.

4.5.2 Impacts of the Proposed Action

Potential impacts related to the turbines, solar arrays, battery energy storage systems (BESS), and substations may be generalized when impacts are common within the Wind Energy Micrositing Corridor or Solar Siting Areas. Where impacts on vegetation are anticipated to differ, they are broken into individual Project components. This Environmental Impact Statement (EIS) describes potential impacts specific to each proposed turbine option (represented by Option 1 or 2), solar array, or BESS where this information was available in the ASC (Horse Heaven Wind Farm, LLC 2022). For the purpose of the vegetation resources impact assessment, Project components considered are described below and acreages of impact associated with the components are presented in **Table 4.5-4**:

- **Wind Energy Micrositing Corridor**: The Micrositing Corridor includes the wind turbine towers, access roads, crane paths, laydown areas, operation and maintenance facilities, meteorological towers, collector lines, and transmission lines. The Applicant provided the areas of disturbance related to Turbine Option 1 but not to Turbine Option 2. Option 1 includes a greater number of turbines than Option 2. It is assumed that Option 2 would have the same or, potentially, fewer impacts on vegetation resources than Option 1. Therefore, only Option 1 is assessed.
- **Solar Siting Areas:** Three Solar Siting Areas are proposed. Impacts from the Solar Siting Areas are further divided into the East Solar Field, County Well Solar Field, and Sellards Solar Field where impacts are anticipated to differ. The three Solar Siting Areas differ in size based on total acreage of impact. Impacts from the Solar Siting Areas include areas under the solar arrays and within the permanent fence.
- **Substations:** Five substations are proposed. Each substation is anticipated to have the same impact on vegetation resources, so one assessment is given that applies to all substations.
- **Battery Energy Storage Systems:** Two BESS are proposed. Impacts on vegetation resources from the BESS are not anticipated to differ, so one assessment is given that applies to all BESS.
- **Comprehensive Project:** The comprehensive Project includes combined impacts from all components.

Table 4.5-4: Acres of Assessment and Disturbance for Project Components

Area	Project Components Included	Total Assessment Area (acres)	Total Disturbance Area (acres)[(a)]
Comprehensive Project	All Project Components	17,065	9,821
Micrositing Corridor	Turbine Option 1	11,845	3,356
	Turbine Option 2	11,845	NA
Solar Siting Area	East Solar Field	4,389	2,181
	County Well Solar Field	3,343	2,689
	Sellards Solar Field	3,023	2,022

Table 4.5-4: Acres of Assessment and Disturbance for Project Components

Area	Project Components Included	Total Assessment Area (acres)	Total Disturbance Area (acres)[(a)]
Battery energy storage system (BESS)	BESS adjacent to Bofer Canyon – HH-East Substation	6	6
	BESS adjacent to the Primary HH-West Step-Up Substation	6	6
	BESS adjacent to the Alternate HH-West Step-Up Substation	6	6
Substations	HH-East Substation	10	10
	Primary HH-West Intermediate Substation	4	4
	Alternate HH-West Intermediate Substation	4	4
	Primary HH-West Step-Up Substation	10	10
	Alternate HH-West Step-Up Substation	10	10

Source: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b).
Note:
(a) Includes both temporary and permanent disturbance.
NA = information not provided by the Applicant

The Wind Energy Micrositing Corridor includes the areas where turbine towers, access roads, crane paths, laydown areas, operations and maintenance facilities, meteorological towers, collector lines, and transmission lines would be developed. The ASC and the associated electronic shapefiles provided by the Applicant provide the area of disturbance related to Turbine Option 1 (Horse Heaven Wind Farm, LLC 2021b). Table 2.1-1 of Chapter 2.0, Proposed Action and Alternatives, illustrates that the temporary and permanent disturbance from turbine installation under Turbine Option 2 would be the same acreage of temporary and permanent disturbance as construction under Turbine Option 1. Turbine Option 1 would include a greater number of turbines than Turbine Option 2 and both would be sited within the same Micrositing Corridor footprint. Without the detailed design of disturbance areas for Option 2, it is assumed that the impacts from Option 2 would be similar to Option 1, and only Option 1 is assessed herein.

Impacts of the Proposed Action on vegetation resources are divided into two main categories: direct and indirect. Direct impacts result from an action that has an immediate impact on vegetation resources at the same time and place as the impact. Indirect impacts result from an action that may affect vegetation resources at a separate time or place from the initial impact. The identified impacts of the Project on vegetation resources are described below, with details provided in Sections 4.5.2.1 to 4.5.2.3.

Direct Impacts

For vegetation resources, direct impacts relate to the loss of a habitat for vegetation or a vegetative species. Assessments are provided for the loss of the extent of Priority Habitat, loss of the extent of other habitat, and loss of special status plant species.

Indirect Impacts

For vegetation resources, indirect impacts relate to the decrease in condition of a habitat or of plant species overtime. Indirect impacts to vegetation or plant species occur through degradation or fragmentation.

Degradation of Priority Habitat, other habitat, and suitable habitat for special status plant species refers to alterations of a habitat that negatively impact the plant species and ecosystem functions provided by that habitat. Degradation could occur from the following sources: introduction of hazardous substances, change in surface runoff, introduction or spread of invasive plants or noxious weeds, and deposition of dust.

Fragmentation of Priority Habitat, other habitat, and suitable habitat for special status plant species refers to impacts that further divide or separate vegetation resources. The Project could cause fragmentation of vegetation resources through the construction of roads and permanent disturbance, which could increase the risk of fire or edge effects.

4.5.2.1 Impacts during Construction

Project construction could result in both direct and indirect impacts on vegetation resources. This section describes the relationships between Project activities and their potential impacts. A summary of impact ratings is provided in **Table 4.5-12a.**

Direct Impacts

Direct impacts during construction of the Project include the loss of habitat or vegetative species due to temporary or permanent disturbance.

Loss of Habitat and Special Status Plant Species

Site clearing associated with the construction of the Project would result in direct loss of acreage associated with Priority Habitat and other habitat. Loss of Priority Habitat and other habitat is further divided into two types:

- **Temporary disturbance** is defined as habitat loss that would end when construction is complete and the area would be restored to preconstruction conditions (WDFW 2009). Temporary disturbance from Project construction would occur in equipment laydown areas, construction staging areas, some roads, and areas required for construction that would not be part of the permanent infrastructure. These areas would be revegetated once construction is complete.
- **Permanent disturbance** is defined as habitat loss that would persist throughout the life of the Project and would not be restored when construction is complete (WDFW 2009). Permanent disturbance from Project construction (which extends into operation and decommissioning) would occur in the areas of the final tower footings and associated access roads, the substations, fencing around the solar arrays, and all areas occupied by permanent structures. Permanent disturbance also includes areas identified by the Applicant as modified habitat, which includes areas within the fencing around solar arrays. The areas under and between solar arrays would be disturbed during Project construction and would be replanted following construction; however, areas under the solar arrays would not be able to support certain plant species, including tall grasses, tall forbs, and shrubs. The areas under solar arrays would be planted with a mix of low-growing forbs and grasses (Horse Heaven Wind Farm, LLC 2022). Modified habitat would extend from Project construction through to Project decommissioning, and therefore is included with permanent disturbance.

The Applicant has indicated that revegetation of temporary disturbance would be completed and has provided a proposed revegetation plan (Appendix N, Horse Heaven Wind Farm, LLC 2022). However, there is uncertainty regarding the success of restoring and revegetating shrub-steppe ecosystems, even with reseeding. While some successful seeding post-fire disturbance has resulted in sagebrush population estimates recovering to pre-fire conditions in approximately four to six years (Applestein and Germino 2021), other studies indicate that disturbance alters the population dynamics, growth, and recruitment of sagebrush that can persist for decades

(Shriver et al. 2019). Disturbance alters population size structure, particularly the size of shrubs, which is correlated to survival rate, seed production, and recruitment success (Shriver et al. 2019). Due to the uncertainty associated with the success of restoring shrub-steppe ecosystems, even temporary disturbance is rated a long-term impact due to the uncertainty and time lag associated with restoring mature and stable shrub-steppe ecosystems.

While no special status plant species were documented within the Lease Boundary (Section 3.5), the potential remains for species to be present within areas that would be required for Project construction. Special status plant species are vulnerable by nature due to specific habitat requirements, low populations, or limited habitat availability. The loss of a few individuals can have impacts on the population. The potential for impacts on special status plant species was assessed for the impact areas according to the following elements for each area:

- Type of habitat that would be impacted and that could support special status plant species
- Proximity to known locations of special status plant species

The comprehensive Project would result in approximately 2,952 acres of temporary disturbance and 6,869 acres of permanent disturbance for a combined area of approximately 9,821 acres of disturbance. Temporary and permanent disturbances were calculated independently using spatial data provided by the Applicant for the Wind Energy Micrositing Corridor, Solar Siting Areas, and comprehensive Project (Horse Heaven Wind Farm, LLC 2021b). The total acreage of each habitat subtype available within the Lease Boundary is also included for proportional analysis. To assess the impact on Priority Habitat, the proportion of Priority Habitat that would be lost by each Project component was calculated as a percentage of availability in the Lease Boundary. This was calculated by dividing the acres of disturbance within the Priority Habitat subtype from each Project component by the total Priority Habitat subtype available in the Lease Boundary. Acres of disturbance by habitat subtype can be found in **Table 4.5-5**.

Table 4.5-5: Total Acres of Habitat Types and Subtypes Identified by the Applicant for Temporary and Permanent Disturbance in the Wind Energy Micrositing Corridor, Solar Siting Areas, and Comprehensive Project in Comparison to Total Habitat Available in the Lease Boundary

Habitat Type	Wind Energy Micrositing Corridor (Turbine Option 1)		Solar Siting Areas		Comprehensive Project		Total Habitat Available in the Lease Boundary (acres)
	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Temporary Disturbance (acres)	Permanent Disturbance[b] (acres)	Temporary Disturbance (acres)	Permanent Disturbance[b] (acres)	
Agriculture Land	2,263.9	391.2	200.6	5,589.5	2,323.9	5,802.8	53,450.1
Developed/disturbed	19.3	1.5	3.5	0.01	19.3	1.6	835.7
Grassland							
Eastside (Interior) Grassland (Eastside Steppe)[a]	15.3	5.4	7.9	72.5	16.2	72.5	173.5
Non-native grassland	136.0	11.5	3.2	24.7	137.3	36.1	1,635.5
Planted grassland	259.8	23.3	21.5	215.3	263.0	236.0	4,338.3
Unclassified grassland	0	0	0	0	0.01	0	6,125.2
Shrubland							
Dwarf shrub-steppe[a]	8.9	1.1	0	0	8.9	1.1	23.2
Rabbitbrush shrubland	145.0	41.6	43.8	706.1	152.3	717.2	3,037.7
Sagebrush shrub-steppe[a]	31.4	1.1	2.8	0.3	31.4	1.4	1,372.0
Unclassified shrubland	0	0	0	0	<0.01	0	1,436.6
Total	**2,879.6**	**476.7**	**283.3**	**6,608.41**	**2,952.32**	**6,868.7**	**72,427.8**

Source: Horse Heaven Wind Farm, LLC 2021b

Notes: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b). Sum of the acres within disturbance areas of the Micrositing Corridor and Solar Siting Areas will not equal the comprehensive Project due to overlapping areas. Disturbance areas were only provided for Turbine Option 1. It is assumed that the area required for Turbine Option 2 is equal to or less than Turbine Option 1 (fewer turbines), so Turbine Option 1 presents the worst-case scenario.

[a] Washington State Department of Fish and Wildlife Priority Habitats

[b] Permanent disturbance includes the areas of permanent disturbance and modified habitats described by the Applicant. The modified habitats are areas under and between the solar arrays that would be planted with low-growing native grass and forbs; the vegetation will be restricted to only low-growing species because of the solar arrays.

Table 4.5-6 provides the acreages by habitat subtype for each Solar Siting Area that would be disturbed during Project construction as either temporary disturbance or permanent disturbance. Differences in impacts would be anticipated among the three Solar Siting Areas due to differential impacts on Priority Habitat, so they are assessed individually. A summary of the impacts that construction within the Solar Siting Areas could have on Priority Habitat, other habitat, and special status plant species is provided below. Because Priority Habitats are considered more likely to provide suitable habitat for special status plant species, the assessment is expected to differ among the Solar Siting Areas.

For all Solar Siting Areas, modified habitat, which is accounted for as part of the permanent disturbance, is assessed as a long-term impact because the vegetation under and between the solar arrays would remain "modified" for the duration of the Project. Low-growing grasses and forbs would be planted under the solar arrays following construction, which may offer some habitat for certain species; however, the modified habitat would not be conducive to shrubs and tall grasses (Horse Heaven Wind Farm, LLC 2022). In addition, shading and runoff from solar panels could create altered microhabitats in the areas under and adjacent to the panels (Tanner et al. 2020). Some native plants may not be able to survive in these conditions and the introduction of greater moisture may facilitate the growth of invasive plants. Furthermore, the area would be fenced and would not be accessible to some wildlife species, which could impact seed dispersal (Horse Heaven Wind Farm, LLC 2022).

Loss of other habitat is provided as the total acres of loss and as a percentage for each Project component. Other habitats include the subtypes non-native grassland, planted grassland, rabbitbrush shrubland, unclassified grassland, and unclassified shrubland. To determine the percent loss of other habitat, the temporary and permanent disturbance acres were divided by the total availability of other habitat within the Lease Boundary. A summary of the percentage of temporary and permanent disturbance that would result from each Project component to other habitat is provided in **Table 4.5-7**.

Table 4.5-6: Habitat Types and Subtypes in the Solar Siting Areas

Habitat Type	East Solar Field		County Well Solar Field		Sellards Solar Field	
	Temporary Disturbance (acres)	Permanent Disturbance[(b)] (acres)	Temporary Disturbance (acres)	Permanent Disturbance[(b)] (acres)	Temporary Disturbance (acres)	Permanent Disturbance[(b)] (acres)
Agriculture Land	85.6	1,075.1	30.0	2,580.4	85.0	1,934.0
Developed/Disturbed	2.7	<0.01	0.2	0	0.6	0
Grassland						
Eastside (Interior) Grassland[(a)]	7.9	72.5	0	0	0	0
Non-native Grassland	2.9	21.6	0.1	3.0	0.2	0
Planted Grassland	19.8	140.3	1.3	73.7	0.4	1.2
Shrubland						
Dwarf Shrub-steppe[(a)]	0	0	0	0	0	0
Rabbitbrush Shrubland	43.8	706.1	0	0	0	0
Sagebrush Shrub-steppe[(a)]	2.5	0.3	0	0	0.3	0
Total	**165.2**	**2,015.9**	**31.6**	**2,657.1**	**86.5**	**1,935.2**

Source: Horse Heaven Wind Farm, LLC 2021b

Notes: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b).

(a) Washington State Department of Fish and Wildlife Priority Habitats

(b) Permanent disturbance includes the areas of permanent disturbance and modified habitat described by the Applicant. The modified habitats are areas under and between the solar arrays (i.e., within the fence line) that would be planted with low-growing native grass and forbs; the vegetation would be restricted to only low-growing species because of the solar array.

Table 4.5-7: Percent Impact of Other Habitat Types by Project Component for Temporary and Permanent Disturbance

Project Component	Temporary Disturbance (acres)	Temporary Disturbance (% Loss)[(a)]	Permanent Disturbance (acres)	Permanent Disturbance (% Loss)[(a)]
Turbine Option 1 and Option 2	540.8	3.3 %	76.4	0.5 %
East Solar Field	66.5	0.4 %	868	5.2 %
County Well Solar Field	1.4	<0.1 %	76.7	0.5 %
Sellards Solar Field	0.6	<0.1 %	1.2	<0.1 %
BESS	0	0 %	0	0 %
Substations	0.1	<0.1 %	1.6	<0.1 %
Comprehensive Project	552.6	3.3 %	989.3	6.0 %

Source: Horse Heaven Wind Farm, LLC 2021b

Notes: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b). The sum of all Project components does not equal the comprehensive Project due to overlapping areas among Project components.

(a) Percentage of other habitat types impacted from Project components was calculated by dividing the sum of temporary or permanent disturbance from each Project component by the availability in the Lease Boundary. Other habitats include non-native grassland, planted grassland, rabbitbrush shrubland, unclassified grassland, and unclassified shrubland. Calculations of habitat areas were completed independently using spatial files provided by the Applicant.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

Introduction of Hazardous Substance

The introduction of hazardous substances to the environment could occur in the event of an accidental spill, which could impact vegetation in multiple ways. Hazardous substances identified by the Applicant that may be stored or used during construction or operation of the Project include synthetic lubricating oil, glycol-water mix, transformer mineral oil, hydraulic fluid, and diesel fuel. Hazardous substances could cause direct mortality, loss of vigor, and increased susceptibility to pathogens in plants. Impacts could be long term if soil chemistry is altered. During Project construction, the introduction of hazardous substances would be associated with the following activities:

- Refueling vehicles and equipment (e.g., oil, diesel fuel)
- Vehicle and equipment maintenance (e.g., oil leak)
- Concrete-mixing for foundations and pads

These construction activities would be required for all Project components.

Surface Runoff

Surface runoff from areas disturbed by the Project (i.e., exposed soil) could contain suspended soils, which could impact soil quality and vegetation. Low levels of sedimentation are not expected to impact vegetation resources; however, high sedimentation levels have the potential to influence the physical and chemical parameters of soil, which may impact ecosystem function and vegetation quality in habitat adjacent to the Project. Sedimentation can reduce photosynthesis and repress the growth of plants. In addition, the Project is anticipated to increase the area

of impermeable surfaces in the Lease Boundary, which may increase surface runoff. During construction, surface runoff would be associated with the following activities:

- Clearing and grading the site
- Excavating soil
- Stockpiling soil
- Constructing site roads, laydowns, turnaround areas, and crane pads
- Constructing the foundations for turbine posts and solar array tracking system
- Areas in early stages of revegetation following disturbance

These construction activities would be required for all Project components. It is not anticipated that any of the Project components would have a greater impact on vegetation from surface runoff, relative to each other.

Introduction or Spread of Invasive Plants or Noxious Weeds

Project construction could introduce or spread invasive plants or noxious weeds. Invasive plants and noxious weeds have been documented throughout the Lease Boundary and are described in Section 3.5. Invasive plants are often pioneering species with highly competitive traits and readily established on exposed soil. The primary vectors that could introduce or spread invasive plants and noxious weeds are vehicles and equipment. Invasive species have the potential to alter the chemical and physical properties of soil, as well as nutrient cycling (Weidenhamer and Callaway 2010), which can alter the structure and composition of native vegetation. Within shrub-steppe ecosystems, fragmentation of vegetation communities by linear features such as roads and transmission lines have created conditions that facilitate the spread of invasive species (Knick et al. 2003). Project construction would result in the following linear features, some of which would be located in Priority Habitat (Horse Heaven Wind Farm, LLC 2022):

- approximately 138.1 miles of roads and crane paths
- approximately 2.8 miles of access roads for meteorological towers
- approximately 46.5 miles of transmission lines
- approximately 285.4 miles of underground collector lines

Construction of all Project components could introduce or spread invasive plants and noxious weeds. The assessment of impacts from the introduction or spread of invasive plants or noxious weeds is provided in **Table 4.5-12a**. Introduction and spread of invasive plants or noxious weeds would be minimized through the implementation of the Noxious Weed Control Plan (Appendix N, Horse Heaven Wind Farm, LLC 2022) and the mitigation measures proposed in the 2022 ASC.

Deposition of Dust

Project construction could increase ambient dust from site preparation and clearing activities, which would then be deposited in the surrounding vegetation. Dust deposition could affect the quality and quantity of vegetation adjacent to construction areas. Dust can coat vegetation and cause adverse effects on vegetation growth, block stomata, reduce photosynthesis, and affect plant vigor (Farmer 1991).

Dust from Project construction could be generated during site preparation, excavating, and concrete works and from increased vehicle and equipment access on roads. In addition, vehicles and equipment accessing the site on gravel roads could generate dust. Vehicles would require access in subsequent stages for operations and maintenance and Project decommissioning. These activities would be applicable to all Project components. It is anticipated that all Project components would have approximately equivalent impacts from dust generation. The assessment of impacts for the deposition of dust is provided for the following Project components and Project component areas: Wind Energy Micrositing Corridor, Solar Siting Areas, substations, and BESS (**Table 4.5-12a**).

Habitat Fragmentation

Fire

Project construction could increase the risk of fire, particularly during hot, dry conditions. Wildfires have become more commonly human-caused than natural (WDFW 2011). As described in Section 3.13.2, Benton County has a high potential for wildfire. Activities associated with construction that could increase the risk of fire include brush clearing, improper vehicle or equipment staging, and improper storage of flammable products, such as diesel for vehicles. In addition, workers on site could accidentally cause a fire in dry conditions, such as through improper disposal of cigarettes. Certain species within the Lease Boundary may further increase the risk—e.g., cheatgrass, a common invasive plant in the area. Relative to native vegetation, cheatgrass dries earlier in the season and can change fire intensity levels and fire return intervals and lengthen wildfire risk beyond the natural season (WDFW 2011).

Impacts from fire on individual plants include tissue damage and mortality. Plant species vary in their tolerance to fire. Rabbitbrush (*Chrysothamnus viscidiflorus*) is a fire-tolerant species and readily sprouts post-fire. Conversely, big sagebrush (*Artemisia tridentata*) is a fire-intolerant species and is slow to recover following wildfire events (USGS 2018). Big sagebrush is an indicator species for sagebrush shrub-steppe, while high cover of rabbitbrush represents an early seral stage of shrubland. Decreased time intervals between fire events may limit the re-establishment of later successional species such as big sagebrush.

At a larger scale, fire could impact and alter vegetation communities in combination with other indirect effects. While fire is a natural component of the ecosystem, it may be detrimental in areas of fragmented native ecosystems. Where shrub-steppe and native grasslands are fragmented, fire could burn through the remnant patch. Given the landscape, there is limited adjacent shrub-steppe habitat within the Lease Boundary or Vegetation Area of Analysis to provide a source of seeds for natural revegetation. Fires in warm and dry climates, where adjacent seed sources are lacking, recover slowly and may require seeding (USGS 2018). Areas affected by fire may provide opportunities for invasive plants to establish or spread before native vegetation has recovered, particularly where invasive plants are already common on the landscape.

In addition, vegetation and detritus intercept water before it reaches the soil, which helps slow water contacting soil and enables greater infiltration (Moench and Fusaro 2012). Plant roots also help to anchor soil in place, but, once dead, plant roots no longer provide this ecosystem function. If a fire impacts a large area of vegetation, there could be greater exposed soil and increased risk of water mobilizing sediments into streams and other water sources, resulting in sedimentation.

Turbine Option 1 and Option 2

A summary of the impacts that construction within the Wind Energy Micrositing Corridor (Turbine Option 1 or Option 2) could have on habitat and special status plant species is provided below (Horse Heaven Wind Farm, LLC 2022; Appendix K, Horse Heaven Wind Farm, LLC 2022). Areas of temporary and permanent disturbance

were provided by the Applicant for Turbine Option 1 but have not been provided for Turbine Option 2. Turbine Option 1 includes a greater number of wind turbines and access roads. As the detailed design for the Project is not complete, the disturbance areas for Turbine Option 1 were assessed for both Turbine Option 1 and Option 2 as a worst-case scenario.

Direct Impacts

Direct impacts during construction of the turbines include the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

The temporary disturbance and permanent disturbance of Priority Habitat are provided in **Table 4.5-8**.

Table 4.5-8: Loss of Extent of Priority Habitat - Micrositing Corridor

	Temporary Disturbance (acres)	Temporary Disturbance (percent of total disturbance)	Permanent Disturbance (acres)	Temporary Disturbance (percent of total disturbance)
Eastside (interior) grassland[(a)]	15.3	9 %	5.4	3 %
Dwarf shrub-steppe[(b)]	8.9	38 %	1.1	5 %
Sagebrush shrub-steppe[(b)]	31.4	2 %	1.1	<1 %

Source: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b).
Notes:
[(a)] Part of the Eastside Steppe Priority Habitat
[(b)] A subtype of Shrub-steppe Priority Habitat
N/A = not applicable

Loss of extent of Priority Habitat is rated high magnitude for temporary disturbance as there would be greater than 10 acres of impact on Priority Habitat and greater than 20 percent of impact for dwarf shrub-steppe Priority Habitat. A total of 38 percent (8.9 acres) of dwarf shrub-steppe habitat subtypes known to occur in the Lease Boundary would occur within temporary disturbance areas identified for the Micrositing Corridor. A total of 9 percent (15.3 acres) of Eastside (interior) grassland would occur in temporary disturbance areas for the Micrositing Corridor. This degree of loss could impact the ecological functions provided by Priority Habitat. Infrastructure such as wind turbines and roads would impact the core of some habitat patches and result in habitat fragmentation. The duration of loss of extent of Priority Habitat is rated long term for temporary disturbance because of the uncertainty associated with revegetation success and the time lag associated with achieving mature shrub-steppe. The likelihood is rated as unavoidable because the Applicant has identified these areas as temporary and permanent disturbance areas that would be required for Project construction. The spatial extent would be less than 100 acres, and so is rated as limited within the Lease Boundary.

Loss of extent of Priority Habitat is rated low magnitude for permanent disturbance. Less than 10 acres of Priority Habitat is proposed to be permanently disturbed. Permanent disturbance is mainly concentrated around Priority Habitat edges, except permanent disturbance within the dwarf shrub-steppe Priority Habitat, which may impact some core habitat. The duration of loss of extent of Priority Habitat is rated as long term for permanent disturbance, as habitats in these areas would be lost from construction through to decommissioning but would be

revegetated following decommissioning. In addition, there is uncertainty associated with the success of revegetation and the time lag associated with restoring mature shrub-steppe. The likelihood is rated as unavoidable because the Applicant has identified these areas as temporary and permanent disturbances that would be required for Project construction. The spatial extent would be less than 100 acres and is rated as limited within the Lease Boundary.

Loss of Extent of Other Habitat

Loss of extent of other habitat is rated low magnitude for temporary disturbance as construction would temporarily impact 3.3 percent of other habitat in the Lease Boundary. The duration is rated as short term for temporary disturbance. The likelihood is rated unavoidable because the Applicant has identified these areas would be required for Project construction. The spatial extent would be greater than 100 acres so is rated confined within the Lease Boundary.

Loss of extent of other habitat is rated negligible magnitude for permanent disturbance as construction would permanently impact less than 1 percent of other habitat in the Lease Boundary. The duration is rated long term for permanent disturbance. The likelihood is rated as unavoidable because the Applicant has identified these areas would be required for Project construction. The spatial extent would be less than 100 acres, so is rated limited within the Lease Boundary.

Loss of Extent of Special Status Plant Species

While the majority of the area within the Micrositing Corridor is classified as agriculture, all three Priority Habitats known to occur within the Lease Boundary would be impacted within the Micrositing Corridor. Priority Habitats contain native vegetation with varying degrees of disturbance. Special status species associated with Shrub-steppe Priority Habitat and Eastside Steppe Priority Habitat would have increased potential for occurring where the Micrositing Corridor overlaps with the Priority Habitats.

The habitat suitability mapping for woven spore lichen (*Texosporium sancti-jacobi*) provided by the Applicant identified 18.9 acres of potentially suitable habitat within the Micrositing Corridor, and four occurrences of the lichen are known to occur within 3 miles of the Lease Boundary (Appendix K, Horse Heaven Wind Farm, LLC 2022). The nearest known location of woven spore lichen is located within 0.6 miles north of the Micrositing Corridor.

A summary of the impact ratings is provided in **Table 4.5-12a**. Loss of extent of special status species is rated medium magnitude as impacts would occur in 18.9 acres of suitable habitat for woven spore lichen. Impacts are anticipated to be at least partially reversible with restoration. The duration is rated as constant, from construction through to decommissioning, and could extend beyond the life of the Project as populations of special status plant species would be difficult to recover if lost. The likelihood is rated as feasible, as special status species have not been documented, but suitable habitat occurs. In addition, surveys did not document lichens or non-vascular plants. The spatial extent of the impact is local as impacts on a special status plant species or population may affect the local population beyond the Lease Boundary. Because special status plant species are vulnerable by nature, additional impacts such as loss of a subpopulation could cause population-level impacts through reduced genetic diversity and reduced resilience to stochastic events, among other factors.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

The potential exists for habitat degradation to occur during the construction of the turbines. Commitments proposed by the Applicant would meet state and county requirements for best practices, but habitat degradation could occur in the form of the introduction of hazardous substances, the potential for surface runoff, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust.

Accidental spills related to the construction of the Project would be small in scale and would be originating from a point source of either equipment or vehicles. The development of a Spill Response Plan would minimize the risk of spills and spill response material would be available on site.

Surface runoff is not anticipated to exceed greater than 100 acres. Vegetation resources are expected to recover easily following removal of the source of surface runoff. The development of the SWPPP and TESC plan would minimize the risk of surface runoff.

Noxious weeds and invasive plants are already common in the Micrositing Corridor, which would provide a continuous source for weeds to establish. Noxious weeds and invasive plants typically require multiple years of treatment and monitoring to control. There is a high likelihood that equipment would encounter invasive plants on site during the construction of the turbines. This could result in spreading invasive plants to work areas through soil or plant propagules, even with best practices and mitigation. In addition, the Noxious Weed Control Plan would only include treatment and monitoring for noxious weeds, not all invasive plants. Invasive plants and noxious weeds could spread beyond the initial occurrence, including the Lease Boundary, and often have traits that facilitate their dispersal and colonization.

There would be a small increase in dust-generating activities that could impact adjacent vegetation during the construction of the turbines. The arid environment increases the potential for dust-generating activities. Dust generated from the Project could be spread beyond the Lease Boundary by wind or water.

The magnitude of habitat degradation during the construction of the turbines is rated as low as sources are likely to be point sources and would not affect sensitive receptors. Habitat degradation is rated as having a long-term duration due to the potential for this impact to occur throughout the Construction Stage and for treatment and monitoring to last into operation of the Project. The likelihood is rated as feasible due to the nature of the activities, and the spatial extent would be local because the impact would have the potential to occur beyond the Lease Boundary.

Habitat Fragmentation

The impact of fire on vegetation resources is rated low magnitude because most Project activities would not have a high risk of causing fire. However, turbine installation may pose a risk due to the combustible materials and lubricants in the nacelle and diesel-powered generators that may be required. The duration is rated long term as ecosystem recovery from a fire could take several years. The likelihood is rated as feasible for the Micrositing Corridor with the application of BMPs. Combustible materials would be required during the construction of the turbines. The nacelle of turbines contains combustible materials and lubricants that may pose a risk to fire, and diesel-powered generators may be required during turbine commissioning. The spatial extent is local as fire, under the right conditions (e.g., wind and heat), could move across the landscape rapidly and have the potential to impact areas beyond the Lease Boundary.

Solar Siting Areas

Impacts from the Solar Siting Areas are assessed as direct and indirect impacts. The assessment is further divided where impacts on vegetation resources would differ between each solar field.

Direct Impacts

Direct impacts during construction of the solar arrays include the loss of extent of Priority Habitat, other habitat, and special status species for each solar field.

Loss of Extent of Priority Habitat

East Solar Field

As referenced in **Table 4.5-6**, loss of extent of Priority Habitat within the East Solar Field would impact Eastside (interior) grassland and sagebrush shrub-steppe. Disturbance related to construction would temporarily impact 4.6 percent (7.9 acres) of Eastside (interior) grassland available within the Lease Boundary and permanently impact 41.7 percent (72.5 acres). Construction of the East Solar Field would temporarily impact less than 0.1 percent (2.5 acres) of sagebrush shrub-steppe available within the Lease Boundary and permanently impact less than 0.1 percent (0.3 acres).

A summary of the impact ratings is provided in **Table 4.5-12a**. Impacts related to loss of extent of Priority Habitat from construction are rated medium for temporary disturbance. Temporary disturbance is greater than 10 acres but would primarily impact the edge of Priority Habitat. Impacts are expected to be partially reversible with revegetation; however, shrubs and tall grasses may not be feasible to plant within the solar array area. The duration is rated as long term for temporary disturbance because of the uncertainty associated with revegetation success and the time lag associated with achieving mature shrub-steppe. The likelihood is rated as unavoidable for both permanent and temporary disturbance because the Applicant has identified these areas as disturbance areas required for Project construction. The spatial extent is rated limited based on the total area of disturbance to Priority Habitat.

Impacts related to loss of extent of Priority Habitat from construction of the East Solar Field are rated high magnitude for permanent disturbance. Permanent disturbance in the East Solar Field would impact 41.7 percent of Eastside (interior) grassland, including loss of the core area in the patch, available in the Lease Boundary. Impacts may not be fully reversible. The duration is rated long term for permanent disturbance and modified habitat. In addition, there is uncertainty associated with the success of revegetation and the time lag associated with restoring mature shrub-steppe. The likelihood is rated unavoidable because the Applicant has identified permanent disturbance areas that would be required for Project construction. The spatial extent is rated limited based on the total area of permanent disturbance to Priority Habitat.

County Well Solar Field

No Priority Habitat is mapped in the County Well Solar Field.

A summary of the impact ratings is provided in **Table 4.5-12a**. Impacts from construction of the County Well Solar Field on loss of extent of Priority Habitat is rated negligible magnitude for temporary and permanent disturbance as there would be no impacts on Priority Habitat. The duration is rated long term for temporary disturbance and long term for permanent disturbance and modified habitat. The likelihood is rated as unlikely for temporary and permanent disturbance. The spatial extent is rated as limited within the Lease Boundary for temporary and permanent disturbance.

Sellards Solar Field

As referenced in **Table 4.5-6**, loss of extent of Priority Habitat within the Sellards Solar Field would impact sagebrush shrub-steppe. Disturbance related to construction would temporarily impact less than 0.1 percent (0.3 acres) of sagebrush shrub-steppe within the Lease Boundary.

Impacts related to loss of extent of Priority Habitat from construction of the Sellards Solar Field are rated low magnitude for temporary disturbance, as there would be less than 1 acre of disturbance to Priority Habitat. Adjustments during construction could avoid or further minimize the impacts on Priority Habitat. The duration is rated long term for temporary disturbance because of the uncertainty associated with revegetation success and the time lag associated with achieving mature shrub-steppe. The likelihood is rated as feasible for temporary disturbance. While the area has been identified, final siting could seek avoidance of the small area of Priority Habitat. The spatial extent is rated as limited for all disturbance types.

Impacts on Priority Habitat from permanent disturbance are rated as negligible magnitude because no impacts to Priority Habitats would occur in these disturbance areas. The duration is rated long term for permanent disturbance. The likelihood is rated as unlikely for permanent disturbance as there would be no impacts on Priority Habitats. The spatial extent is rated as limited for all disturbance types.

Loss of Extent of Other Habitat

East Solar Field

Impacts related to loss of extent of other habitat from construction of the East Solar Field are rated negligible for temporary disturbance. Temporary disturbance would occur to less than 1 percent of other habitat. The duration is rated as short term for temporary disturbance. The likelihood is rated as unavoidable because the Applicant has identified these areas would be required for Project construction. The spatial extent is rated as limited for temporary disturbance.

Impacts related to loss of extent of other habitat from construction of the East Solar Field are rated low magnitude for permanent disturbance. Permanent disturbance would occur to 5.2 percent of other habitat, including rabbitbrush shrubland. Modified habitat would be planted under the solar arrays, but only low-growing grasses and forbs can be planted. The structural complexity provided by the rabbitbrush shrubland would be lost from construction through to decommissioning. The duration is rated long term for permanent disturbance. The likelihood is rated as unavoidable because the Applicant has identified these areas would be required for Project construction. The spatial extent is rated confined for permanent disturbance.

County Well Solar Field

The magnitude of impact from construction of the County Well Solar Field related to loss of extent of other habitat is rated negligible for temporary and permanent disturbance as there would be less than 1 percent disturbance to other habitat for both disturbance types. The duration is rated as short term for temporary disturbance and long term for permanent disturbance. The likelihood is rated as unavoidable for temporary and permanent disturbance because the Applicant has identified these areas would be required for Project construction. The spatial extent is rated as limited.

Sellards Solar Field

Impacts related to loss of extent of other habitats from construction of the Sellards Solar Field are rated negligible magnitude for temporary and permanent disturbance. Impacts from temporary disturbance are rated short term and impacts from permanent disturbance are rated long term. The likelihood is rated as unavoidable for temporary

and permanent disturbance because the Applicant has identified these areas would be required for Project construction. The spatial extent is rated as limited.

Loss of Extent of Special Status Plant Species

East Solar Field

No special status plant species have been identified in the East Solar Field; however, Priority Habitat within the East Solar Field has the potential to support some special status plant species. No suitable habitat for woven spore lichen has been identified.

A summary of the impact ratings is provided in **Table 4.5-12a**. Impacts on special status species from construction of the East Solar Field are rated medium magnitude as there would be a potential to impact special status species. While no species were documented within the East Solar Field, Priority Habitats within the East Solar Field have increased potential to support special status plants. Impacts on Eastside (interior) grassland and shrub-steppe are anticipated to be partially reversible with the establishment of modified habitat but may lack the structural complexity of tall grasses and shrubs. The duration of impacts is rated as constant during the life of the Project and/or beyond the Project. Special status species are often limited in distribution, have low tolerance of disturbance, and/or are associated with unique features. If impacted, there is a low likelihood that the population would recover. The likelihood of impacts is rated as unlikely as special status species have not been documented within the Lease Boundary. The spatial extent of the impacts is rated local.

County Well Solar Field

Habitat types within the County Well Solar Field include agriculture, developed/disturbed, planted grassland, and non-native grassland. These habitat types have a high degree of disturbance and non-native species. Special status plant species are not anticipated to occur in these habitats.

The magnitude of impact on special status plant species from construction of the County Well Solar Field is rated negligible. Special status plant species are not expected to occur because they have not been documented during surveys and there is no suitable habitat within the County Well Solar Field disturbance areas. The duration of impact is rated constant. The likelihood is rated as unlikely as there is no suitable habitat, and the spatial extent is rated local.

Sellards Solar Field

No special status plant species have been identified in the Sellards Solar Field; however, Priority Habitat within the Sellards Solar Field has the potential to support special status plant species.

Impacts on special status species from construction of the Sellards Solar Field are rated low magnitude as there would be some potential to impact special status species. No special status plant species have been documented, but there is less than 1 acre of Priority Habitat that would occur within disturbance areas of Sellards Solar Field, which is considered potential suitable habitat. The magnitude of impacts is rated low. Adjustments during construction could avoid impacts on Priority Habitat, which could reduce the magnitude. The duration is rated as constant. The likelihood of impacts is rated as unlikely as special status species have not been documented within the Lease Boundary. The spatial extent of the impacts is rated local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation (All Solar Siting Areas)

The potential exists for habitat degradation to occur during the construction of the solar arrays. Habitat degradation could occur in the form of the introduction of hazardous substances, the potential for surface runoff, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. The magnitude for the potential for habitat degradation is rated low. The duration is rated as long term due to the potential for some effects from the impacts to last longer than the Construction Stage of the Project. The likelihood is rated as feasible due to the Applicant's commitments and the additional mitigation measures presented, and the spatial extent is rated local to address the potential for impacts to affect areas past the Lease Boundary.

Habitat Fragmentation (All Solar Siting Areas)

Similar to the construction of the turbines, the magnitude for the potential of fire impacts is rated low, the duration is rated long term, and the spatial extent is local. The likelihood is rated as unlikely. Construction of solar arrays would not require the use of combustible materials.

Battery Energy Storage Systems

No differences in impacts are anticipated among the three proposed locations, and the three BESS are rated together in **Table 4.5-12a** (i.e., not broken out as individual BESS).

Direct Impacts

Direct impacts during construction of the BESS include the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

No impacts on Priority Habitat would occur within the disturbance areas for the BESS.

A summary of the impact ratings is provided in **Table 4.5-12a**. Impacts resulting in loss of extent of Priority Habitat from construction of the BESS are rated negligible magnitude for temporary and permanent disturbance. The duration is rated long term for temporary disturbance and long term for permanent disturbance. The likelihood is rated as unlikely, and the spatial extent is rated as limited for both temporary and permanent disturbance.

Loss of Extent of Other Habitat

All three BESS would be situated on approximately 6.0 acres of agriculture land each (Section 3.5).

Impacts resulting in loss of extent of other habitat from construction of the BESS are rated negligible magnitude for temporary and permanent disturbance as impacts on other habitat would not occur. The duration of impact for temporary disturbance would be short term, and long term for permanent disturbance. Temporary and permanent disturbance are rated as unavoidable as other habitat would not be impacted due to Project siting of the BESS. The spatial extent is rated as limited.

Loss of Extent of Special Status Plant Species

The BESS are all sited in areas characterized as agriculture land. No suitable habitat for special status plant species occurs within these areas.

A summary of impact ratings is provided in **Table 4.5-12a.** The magnitude of impact of construction of the BESS on special status plant species is rated negligible. The duration is rated constant. The likelihood is rated as unlikely, and the spatial extent is local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

The construction of the BESS has the potential to introduce hazardous substances, surface runoff, new or increased spread of invasive plants, and deposition of dust. As with the construction of the turbines, habitat degradation during the construction of the BESS is rated low, long-term, feasible, and local.

Habitat Fragmentation

Similar to the construction of the Turbines, the magnitude of fire impacts for the construction of the BESS is rated low, the duration is rated long term, the likelihood is rated as feasible, and the spatial extent is local.

Substations

No differences in impacts are anticipated among the five proposed locations, and the five substations are rated together in **Table 4.5-12a** (i.e., not broken out as individual substations).

Direct Impacts

Direct impacts during construction of the substations includes the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

No impacts on Priority Habitat would occur within any of the proposed substation locations.

A summary of the impact ratings is provided in **Table 4.5-12a**. The magnitude of impacts from construction of the substations related to loss of Priority Habitat is rated negligible as there are no Priority Habitats known to occur in these areas. The duration is rated as long term for temporary disturbance and long term for permanent disturbance. The likelihood is rated as unlikely as there are no known Priority Habitats. The spatial extent is rated as limited.

Loss of Extent of Other Habitat

Temporary and permanent disturbance areas by substation are provided in **Table 4.5-9**.

Table 4.5-9: Temporary and Permanent Disturbance Acres by Substation

Substation	Habitat Subtype	Temporary Disturbance (acres)[(a)]	Permanent Disturbance (acres)[(b)]
HH-East Substation	Agriculture Land	0.4	10
Primary HH-West Step-up Substation	Agriculture Land	1.0	10
Alternate HH-West Step-up Substation	Agriculture Land	0.6	10
Alternate HH-West Intermediate Substation	Agriculture Land	0.4	4
Primary HH-West Substation	Agriculture Land	0.3	2.4
	Non-native grassland	0.1	1.6

Source: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b).
Notes:
(a) Temporary disturbance areas include the perimeter of the substation. Temporary disturbance are approximate values based on the spatial files.
(b) Permanent disturbance areas include the area required for the substation.

Impacts of the substations related to loss of extent of other habitats are rated negligible magnitude for temporary and permanent disturbance as less than 1 percent of other habitat available in the Lease Boundary would be impacted. Only the Primary HH-West Substation will impact other habitat as shown in **Table 4.5-9.** The duration of impacts for temporary disturbance would be short term, and long term for permanent disturbance. This impact is rated as unavoidable as the disturbance areas would be required for construction, as indicated by the 2022 ASC. The impact is rated as limited as the substations occupy approximately 4 or 10 acres each, which constitutes a small area within the Lease Boundary.

Loss of Extent of Special Status Plant Species

The substations are all sited in areas characterized as agriculture land and/or non-native grassland. No suitable habitat for special status plant species occurs within these areas.

Impacts on special status plant species are summarized in **Table 4.5-12a.** The magnitude of impact from construction of the substations is rated negligible as there is no suitable habitat within the proposed disturbance areas for the substations. The duration is rated constant. The likelihood is rated as unlikely, and the spatial extent is local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

The construction of the substations has the potential to introduce hazardous substances, surface runoff, new or increased spread of invasive plants, and deposition of dust. As with the construction of the turbines, habitat degradation during the construction of the substations is rated as low, long-term, feasible, and local.

Habitat Fragmentation

Similar to the Solar Siting Areas, the magnitude of fire impacts for the construction of the substations is rated low, the duration is rated long term, the likelihood is rated as unlikely, and the spatial extent is local.

Comprehensive Project

Impacts from construction of the comprehensive Project consider all Project components together.

Direct Impacts

Direct impacts during construction of the Project includes the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

The combined impacts from the comprehensive Project would result in direct impacts on Priority Habitat. The proportion of Priority Habitat impacted is based on the proportion of Priority Habitat disturbed compared to the total available in the Lease Boundary. The total habitat available in the Lease Boundary is presented in **Table 4.5-5**.

Impacts on Eastside (interior) grassland include 16.2 acres of temporary disturbance and 72.5 acres of permanent disturbance, which constitutes 51.1 percent of the Eastside (interior) grassland within the Lease Boundary.

Impacts on dwarf shrub-steppe include 8.9 acres of temporary disturbance and 1.1 acres of permanent disturbance, which constitutes 43.1 percent of the dwarf shrub-steppe habitat within the Lease Boundary.

Impacts on sagebrush shrub-steppe include 31.3 acres of temporary disturbance and 1.4 acre of permanent disturbance, which constitutes 3.1 percent of the sagebrush shrub-steppe habitat within the Lease Boundary.

A summary of the impact ratings is provided in **Table 4.5-12a**. Impacts from all Project components related to the loss of extent of Priority Habitat are rated as high magnitude for temporary disturbance and permanent disturbance. Impacts on Priority Habitat would be greater than 20 acres for both temporary and permanent disturbance. Impacts would occur in the core area within patches of Priority Habitat and are anticipated to lead to further habitat degradation, which may alter ecological function. The duration of impacts for temporary disturbance and permanent disturbance are rated long term. Revegetation of the site is proposed for temporary disturbance after construction following the Revegetation Plan (Appendix N; Horse Heaven Wind Farm, LLC 2022) and site restoration would occur following decommissioning (Appendix A; Horse Heaven Wind Fam, LLC 2022); however, there is uncertainty associated with revegetation success, and there would be a time lag associated with achieving mature shrub-steppe. The impacts are rated as unavoidable for temporary and permanent disturbance because the areas would be required for Project construction. The impacts are rated as limited within the Lease Boundary.

Loss of Extent of Other Habitat

Impacts from all Project components on the loss of extent of other habitat are rated as low magnitude for temporary and permanent disturbance. Temporary disturbance would result in approximately 3.3 percent loss of other habitat, and permanent disturbance would result in approximately 6.0 percent loss. The duration of impacts would be short term for temporary disturbance, and long term for permanent disturbance and modified habitat. The impacts are rated as unavoidable for temporary and permanent disturbance as the areas would be required for Project construction. The impacts are rated as confined as impacts from temporary and permanent disturbance would be greater than 100 acres each.

Loss of Extent of Special Status Plant Species

No special status species were observed within any of the areas where Project components are sited; however, Priority Habitat has the potential to support special status species. In addition, 18.9 acres of potentially suitable

habitat for woven spore lichen occurs in the Micrositing Corridor (Appendix K, Horse Heaven Wind Farm, LLC 2022).

A summary of the impact ratings is provided in **Table 4.5-12a**. Impacts from all Project components resulting in the loss of extent of special status species are rated as medium for magnitude as there could be impacts on special status species. The duration of the impact is rated constant as populations of special status species would be difficult to recover if lost. The impact is rated as feasible because there is suitable habitat within areas identified for impact. The impact is rated as local because impacts would occur within the Lease Boundary.

Indirect Impacts

Habitat Degradation

The construction of the Project has the potential to introduce hazardous substances, surface runoff, new or increased spread of invasive plants, and deposition of dust. As with the construction of the turbines, habitat degradation during the construction of the comprehensive Project is rated as low, long-term, feasible, and local.

Habitat Fragmentation

Similar to the construction of the turbines, the magnitude of fire impacts for the construction of the comprehensive Project is rated low, the duration is rated long term, the likelihood is rated as feasible, and the spatial extent is local.

4.5.2.2 Impacts during Operation

Impacts on vegetation during Project operation are described below as they relate to Turbine Option 1, Turbine Option 2, Solar Siting Areas, BESS, substations, and the comprehensive Project. A summary of the impact assessment is provided in **Table 4.5-12b**.

Direct Impacts

Direct impacts during Project operations include potential loss during vegetation maintenance.

Vegetation Maintenance

During operation, vegetation maintenance would be required for the Project, primarily under the solar arrays. Following construction, low-growing grasses and forbs would be seeded under the solar arrays (Horse Heaven Wind Farm, LLC 2022). Limited information is provided in the 2022 ASC regarding vegetation maintenance activities during operation. However, it is anticipated that some vegetation maintenance may be required in order to remove shrubs, tall grasses, and tall forbs that may establish under the solar arrays. Maintenance would be limited to trimming and removing plants and may also include removing tumbleweeds from fences. Vegetation maintenance would include maintenance along the solar array fence lines. Additional vegetation maintenance may be required along and adjacent to roads.

Vegetation maintenance would have a direct impact on vegetation resources. The magnitude of the impact is rated negligible. While some vegetation maintenance may be required for general operations, it is anticipated to be limited to areas of permanent disturbance and modified habitat. In addition, planting low-growing grasses and forbs in areas of modified habitat would minimize the amount of vegetation maintenance required. The duration is rated long term as maintenance would be required throughout operations. The likelihood is rated probable, and the spatial extent is rated limited for the substations and BESS and confined for all other Project components, including the comprehensive Project.

Indirect Impacts

Indirect impacts during Project operation would include habitat degradation and habitat fragmentation.

Habitat Degradation

Introduction of Hazardous Substances

Hazardous substances would continue to be stored on site during Project operation. Hazardous substances that would be required for the Project include synthetic lubricating oil, glycol-water mix, transformer mineral oil, hydraulic fluid, and diesel fuel. Impacts of hazardous substances are described in Section 4.5.2.1 and are applicable to Project operations.

Activities during Project operations that could cause the accidental spill or release of hazardous substances include refueling, maintenance of wind turbines, solar arrays, BESS, and substations. Mitigation measures include a Spill Prevention, Control, and Countermeasures Plan and accessible spill kits, which would minimize the impacts of a spill on vegetation resources.

Introduction and Spread of Invasive Plants and Noxious Weeds

Project operation activities would have the potential to cause the introduction and spread of invasive plants and noxious weeds. During operation, maintenance vehicles would be required to access all Project components. Vehicles could carry soil or plant propagules that could introduce or spread invasive plants or noxious weeds.

- During operation, solar panel washing may be required in order to remove dirt, airborne dust, pollution, and other particulates that accumulate on the surface of the panels. This accumulation can reduce sunlight penetration and therefore efficiency of solar electricity production (Sugiartha et al. 2019). Washing solar panels restores panel efficiency. Based on the 2022 ASC, the estimated water use for washing all three Solar Siting Areas would be approximately 2,025,000 gallons per year, if required (Horse Heaven Wind Farm, LLC 2022).[26] The Applicant indicates that the frequency of panel washing is presently unknown and that, if required, panel washing would occur once per year (Horse Heaven Wind Farm, LLC 2022). The Project would be located in an arid environment, where native vegetation is adapted to these conditions. The introduction of additional water through panel washing has the potential to create favorable conditions for the spread of invasive plants and noxious weeds.

The Applicant would monitor construction sites that have been revegetated for a minimum of three years post-construction (Appendix N, Horse Heaven Wind Farm, LLC 2022). Treatment of noxious weeds on site would focus on the areas of temporary and permanent disturbance but would extend to adjacent areas where noxious weeds may have been spread if landowners agree to treatment. BMPs, such as vehicle cleaning, would minimize the introduction and spread of invasive plants and noxious weeds.

Deposition of Dust

As discussed in Section 4.5.2.1, the potential for dust deposition would continue into Project operation. Vehicles accessing the site to perform routine maintenance may generate dust from gravel roads that extends to adjacent vegetation.

[26] The EIS has assessed two of the three Solar Siting Areas and therefore assessed a maximum of 1.35 million gallons of water required annually for washing solar panels during operations.

Habitat Fragmentation

Edge Effects

The landscape within the Lease Boundary would be altered relative to existing conditions during Project operations. Major changes would include the increase in road networks and other linear features, increase in permanent structures, and increased use by humans. While vegetation is not affected by noise and sensory disturbance, effects from increased development can result in "edge effects."

Edge effects are changes in ecological conditions due to the meeting of two or more different habitat types, which causes the habitats to impact one another. In the case of the Project, edge effects would occur when there is an increase in developed areas that border natural areas. Edge effects can exacerbate other indirect impacts. For example, the Project would increase the number of roads within the Lease Boundary. Road networks and other transportation corridors can alter adjacent vegetation communities. Invasive plants spread through transportation corridors, and in grassland environments, the effects can extend to 150 meters (492 feet) from roads (Hansen and Clevenger 2005). Similarly, dust can extend up to 40 meters (131 feet) from roads (Gleason et al. 2007). Development, in particular linear features, that bisect natural areas result in habitat fragmentation and could continuously degrade adjacent habitat throughout the life of the Project. Mitigation such as noxious weed control and dust control could minimize the impacts.

Access to all Project infrastructure would be needed, so edge effects could impact all Project components. Magnitude is rated medium for the Wind Energy Micrositing Corridor and Solar Siting Areas as edge effects could extend into sensitive receptors. In addition, the newly built roads would cause fragmentation of the central core of some patches of Priority Habitat (e.g., where the Micrositing Corridor divides dwarf shrub-steppe Priority Habitat).

Fire

The impacts of fire are discussed in Section 4.5.2.1. Project operation activities that have the potential to increase the risk of fire include improper vehicle or equipment staging, and improper storage of flammable products, such as diesel for vehicles. In addition, workers on site could accidentally cause a fire in dry conditions—for example, through improper disposal of cigarettes.

Turbine Option 1 and Option 2

Assessment ratings of impacts from Turbine Option 2 are the same as Turbine Option 1.

Direct Impacts

Direct impacts during operation of the turbines include potential loss during vegetation maintenance.

Vegetation Maintenance

The magnitude of the impact for vegetation maintenance is rated negligible. Minor vegetation maintenance may be required along gravel roads or within concrete turbine foundations to maintain permanent access, these areas are considered areas of permanent disturbance. Vegetation maintenance beyond these features would not be anticipated. The duration is rated long term as maintenance would be required throughout operation. The likelihood is rated probable because vegetation is capable of colonizing on gravel roads but may present a hazard that requires removal. The spatial extent is rated confined as vegetation maintenance for turbines would occur in areas associated with permanent disturbance along the Micrositing Corridor.

Indirect Impacts

Indirect impacts during operation of the turbines would include habitat degradation and habitat fragmentation.

Habitat Degradation

The potential exists for habitat degradation to occur during the operation of the turbines. Habitat degradation could occur in the form of the introduction of hazardous substances, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Mitigation measures would be consistent with state and county requirements and spill response equipment would be available on site.

Although noxious weeds and invasive plants are already common on the landscape, existing noxious weeds or noxious weeds introduced during the Construction Stage of the Project, would require several years of treatment and monitoring. While there would be no additional clearing during operations, vehicles and equipment would require site access for routine maintenance, which could present the potential for introduction and spread. The Noxious Weed Prevention and Control Plan (Appendix N, Horse Heaven Wind Farm, LLC 2022) would be implemented during operation. Noxious weeds can spread beyond the initial occurrence and often have traits that facilitate their dispersal and colonization.

Dust sources would be restricted to the vehicles accessing the site for operations. Continual use of roads could cause dust deposition throughout the Project during operation. Dust generated from the Project could be spread beyond the Lease Boundary by wind or water.

The magnitude of habitat degradation is rated as low as sources are likely to be point sources and would not affect sensitive receptors. Habitat degradation is rated as having a long-term duration due to the potential for this impact to occur throughout the Operation Stage. The likelihood is rated as feasible due to nature of the activities, and the spatial extent would be local because the impact would have the potential to occur beyond the Lease Boundary.

Habitat Fragmentation

Habitat fragmentation during the operation of the turbines could include edge effects or increased fire risks.

The newly built roads would cause fragmentation of the central core of some patches of Priority Habitat (e.g., where the Micrositing Corridor divides dwarf shrub-steppe Priority Habitat).

Project operation presents little increased risk of fire from operation activities, however, ecosystem recovery from a fire could take several years. Fire, under the right conditions (e.g., wind and heat), could move across a landscape rapidly and have the potential to impact areas adjacent to the Lease Boundary.

The magnitude of habitat fragmentation is rated as low as some impacts may result but are not anticipated to alter the ecological conditions from present conditions. Habitat fragmentation is rated as having a long-term duration due to the potential for this impact to occur throughout the Operation Stage. The likelihood is rated as feasible, and the spatial extent would be local because the impact would have the potential to occur beyond the Lease Boundary.

Solar Siting Areas

Impacts from the Solar Siting Areas are assessed as direct and indirect impacts. The assessment is not further divided by solar field as the impacts are not anticipated to differ.

Direct Impacts

Direct impacts during operation of the solar arrays include potential loss during vegetation maintenance.

Vegetation Maintenance

Similar to the operation of the turbines, the magnitude of the impact is rated negligible. The duration is rated long term. The likelihood is rated probable, and the spatial extent is rated confined.

Indirect Impacts

Indirect impacts during operation of the solar arrays would include habitat degradation and habitat fragmentation.

Habitat Degradation

Habitat degradation could occur in the form of the introduction of hazardous substances, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Mitigation measures would be consistent with state and county requirements and spill response equipment would be available on site. Identically rated to the operation of turbines, habitat degradation during the operation of Solar Siting Areas is rated low, long-term, feasible, and local.

Habitat Fragmentation

Habitat fragmentation during the operation of Solar Siting Areas could include edge effects and fire. Identically rated to the operation of turbines, habitat fragmentation during the operations of Solar Siting Areas is rated as low, long-term, feasible, and local.

Battery Energy Storage Systems

No differences in impacts are anticipated among the three proposed locations, and the three BESS are rated together in **Table 4.5-12b** (i.e., not broken out as individual BESS).

Direct Impacts

Direct impacts during operation of the BESS include potential loss during vegetation maintenance.

Vegetation Maintenance

Similar to the operation of the turbines, the magnitude of the impact is rated negligible. The duration is rated long term. The likelihood is rated probable, and the spatial extent is rated limited.

Indirect Impacts

Indirect impacts during operation of the BESS would include habitat degradation and habitat fragmentation.

Habitat Degradation

Habitat degradation could occur in the form of the introduction of hazardous substances, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Mitigation measures would be consistent with state and county requirements and spill response equipment would be available on site. Identically rated to the operation of turbines, habitat degradation during the operation of the BESS is rated low, long-term, feasible, and local.

Habitat Fragmentation

Habitat fragmentation during the operation of Solar Siting Areas could include edge effects and fire. The magnitude is rated negligible to low. The BESS are small in size and do not interact with Priority Habitat. The duration is rated long term as the impact could occur throughout operations. The likelihood is rated as feasible. Lithium-ion battery storage may pose a risk of fire due to the tendency for lithium-ion batteries to overheat. The spatial extent is local.

Substations

No differences in impacts are anticipated among the five proposed locations, and the five substations are rated together in **Table 4.5-12b** (i.e., not broken out as individual substations).

Direct Impacts

Direct impacts during operation of the substations include potential loss during vegetation maintenance.

Vegetation Maintenance

Similar to the operation of the turbines, the magnitude of the impact is rated negligible. The duration is rated long term. The likelihood is rated probable, and the spatial extent is rated limited.

Indirect Impacts

Indirect impacts during operation of the substations would include habitat degradation and habitat fragmentation.

Habitat Degradation

Habitat degradation could occur in the form of the introduction of hazardous substances, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Mitigation measures would be consistent with state and county requirements and spill response equipment would be available on site. Identically rated to the operation of turbines, habitat degradation during the operation of substations is rated low, long-term, feasible, and local.

Habitat Fragmentation

Habitat fragmentation during the operation of Solar Siting Areas could include edge effects and fire. Habitat fragmentation is rated low for the substations. The duration is rated long-term. The likelihood is rated unlikely, and spatial extent is local.

Comprehensive Project

Impacts from operations of the comprehensive Project consider all Project components together.

Direct Impacts

Direct impacts during the Project's operation include potential loss during vegetation maintenance.

Vegetation Maintenance

For the comprehensive Project, the magnitude of the impact is rated negligible. The duration is rated long term as maintenance would be required throughout operations. The likelihood is rated probable, and the spatial extent is rated confined.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

Habitat degradation could occur in the form of the introduction of hazardous substances, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Mitigation measures would be consistent with state and county requirements and spill response equipment would be available on site. Identically rated to the operation of turbines, habitat degradation during the operation of the comprehensive Project is rated low, long-term, feasible, and local.

Habitat Fragmentation

Habitat fragmentation during the operation of Solar Siting Areas could include edge effects and fire. The magnitude is rated as low, as the sum of all Project components would result in greater habitat fragmentation. The duration is rated long-term. The likelihood is rated feasible, and the spatial extent is rated local.

4.5.2.3 Impacts during Decommissioning

Impacts associated with decommissioning would be similar to impacts identified for Project construction (Section 4.5.2.1). Indirect impacts associated with Project decommissioning would be the same as during Project construction. Impact descriptions are provided in Section 4.5.2.1, and impact ratings from decommissioning are provided below. A summary of all impact ratings from decommissioning is provided in **Table 4.5-12c**.

Direct Impacts

Loss of Extent of Priority Habitat

Similar to construction, areas of temporary disturbance would be required in order to remove Project components. It is anticipated that the area of disturbance to Priority Habitat required during decommissioning would be similar to that required during construction. However, the areas of permanent disturbance from construction would have remained disturbed from Project construction, and therefore no additional disturbance would be required. Modified habitat associated with the Solar Siting Areas would also be temporarily lost during Project decommissioning. A summary of the areas of temporary disturbance that would be impacted during Project decommissioning, based on existing conditions, is provided in **Table 4.5-10**. Modified habitat is not included in the habitat breakdown as it would not be the same habitat as existing conditions but is assumed to be a mix of low-growing grasses and forbs (no Priority Habitat). A summary of the assessment rating for Project components is provided in **Table 4.5-12c**.

Table 4.5-10: Areas of Temporary Disturbance Required for Project Decommissioning

Habitat Type	Micrositing Corridor Temporary Disturbance (acres)	East Solar Field Temporary Disturbance (acres)	County Well Solar Field Temporary Disturbance (acres)	Sellards Solar Field Temporary Disturbance (acres)
Agriculture Land	2,269	85.6	30.0	85.0
Developed/Disturbed	21	2.7	0.2	0.6
Grassland				
Eastside (Interior) Grassland[(a)]	15	7.9	0	0
Non-native Grassland	136	2.9	0.1	0.2
Planted Grassland	259	19.8	1.3	0.4
Shrubland				
Dwarf Shrub-steppe[(a)]	9	0	0	0
Rabbitbrush Shrubland	141	43.8	0	0
Sagebrush shrub-steppe[(a)]	31	2.5	0	0.3
Total	**2,881**	**165.2**	**31.6**	**86.5**

Source: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b).
Note: It is assumed that the areas of temporary disturbance required for Project construction would also be required for Project decommissioning.

Loss of Extent of Other Habitat

Similar to construction, areas of temporary disturbance would be required in order to remove Project components. It is anticipated that the area of disturbance required during decommissioning would be similar to that required during construction, except for permanent disturbance, which would have remained from Project construction. Modified habitat associated with the Solar Siting Areas would also be temporarily lost during Project decommissioning. Revegetation of the modified habitat may not have returned to the condition of modified habitat, once the solar arrays are removed. The final plan for revegetation following decommissioning has not been prepared, but it is assumed this would be agreed upon with the landowner. A summary of the areas of temporary disturbance that would be impacted during Project decommissioning, based on existing conditions, is provided in **Table 4.5-10**. Modified habitat is assumed to consist entirely of low-growing grasses and forbs. A summary of the assessment rating for Project components is provided in **Table 4.5-12c.**

Loss of Extent of Special Status Plant Species

Areas of temporary disturbance and modified habitat assumed to be impacted during Project decommissioning would have been previously impacted during Project construction. No special status species have been documented within the Lease Boundary; however, there is still potential for special status species to occur. The likelihood of occurrence for special status species would be less during decommissioning than during construction due to the previous disturbance that would have occurred during the Project construction activities. For example, woven spore lichen is known to occur in the Vegetation Area of Analysis. Woven spore lichen grows on soil and decaying bunchgrasses (Stone et al. 2020). Research has found this special status species is less resilient than other curst lichens, has a slower recovery time following disturbance, and, in some cases, may not recover following disturbance (Stone et al. 2020). Despite no direct impact during operations, persistent edge effects from Project infrastructure such as roads throughout the life of the Project would limit the likelihood of special status plants re-establishing. Increased frequency of invasive plants has been found as far as 150 meters (approximately 492 feet) from roads in grasslands relative to control (Hansen and Clevenger 2005). Invasive plants would degrade the habitat and might outcompete or prevent the re-establishment of special status plants. All other assessment criteria would be the same as discussed in Section 4.5.2.1 for each Project component and Project component area.

An assessment of the direct impacts on vegetation resources during Project decommissioning is provided in **Table 4.5-12c**.

Turbine Option 1 and Option 2

Assessment ratings of impacts from Turbine Option 2 are the same as Turbine Option 1.

Direct Impacts

Direct impacts during decommissioning of the turbines include the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

Magnitude for loss of extent of Priority Habitat is rated high for temporary disturbance because greater than 20 acres would be temporarily disturbed for decommissioning. The duration is long term because there is uncertainty associated with revegetation success and the time lag associated with achieving mature shrub-steppe. The likelihood is rated as unavoidable, and the extent is rated as limited.

Loss of Extent of Other Habitat

Magnitude for loss of other habitats is rated low for temporary disturbance as 3.3 percent of other habitat in the Lease Boundary would be temporarily disturbed for decommissioning. The duration is rated short term. The likelihood is rated as unavoidable, and the spatial extent would be confined.

Loss of Extent of Special Status Plant Species

Magnitude for loss of extent of special status plant species is rated low. The duration of loss of extent of special status plant species is rated constant. The likelihood is rated as unlikely, and the spatial extent is local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

The potential exists for habitat degradation to occur during the decommissioning of the turbines. Commitments proposed by the Applicant would meet state and county requirements for best practices, but habitat degradation could occur in the form of the introduction of hazardous substances, the potential for surface runoff, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust.

Accidental spills related to the decommissioning of the Project would be small in scale and would originate from a point source of either equipment or vehicles. The development of a Spill Response Plan would minimize the risk of spills and spill response material would be available on site.

Surface runoff is not anticipated to exceed greater than 100 acres. Vegetation resources are expected to recover following removal of the source of surface runoff. The development of the SWPPP and TESC Plan would minimize the risk of surface runoff.

Noxious weeds and invasive plants are already common in the Micrositing Corridor, which would provide a continuous source for weeds to establish. Noxious weeds and invasive plants typically require multiple years of treatment and monitoring to control. There is a high likelihood that equipment would encounter invasive plants on site during the decommissioning of the turbines. This could result in spreading invasive plants to work areas through soil or plant propagules, even with best practices and mitigation. Implementation of a Noxious Weed Control Plan during decommissioning would reduce the potential for impacts. Invasive plants and noxious weeds could spread beyond the initial occurrence, including the Lease Boundary, and often have traits that facilitate their dispersal and colonization.

There would be a small increase in dust-generating activities that could impact adjacent vegetation during the decommissioning of the turbines. The arid environment increases the potential for dust-generating activities. Dust generated from the Project could be spread beyond the Lease Boundary by wind or water.

The magnitude of habitat degradation during the decommissioning of the turbines is rated as low as sources are likely to be point sources and would not affect sensitive receptors. Habitat degradation is rated as having a long-term duration due to the potential for this impact to occur throughout the Decommissioning Stage and beyond the life of the Project. The likelihood is rated as feasible due to the nature of the activities, and the spatial extent would be local because the impact would have the potential to occur beyond the Lease Boundary.

Habitat Fragmentation

Project decommissioning of the turbines has the potential to result in habitat fragmentation in the form of fire risk. The magnitude of the impact on vegetation resources is rated low because most Project activities would not have

a high risk of causing fire and vegetation could recover following a fire. The duration is rated long term as ecosystem recovery from a fire could take several years. The likelihood is rated as feasible with the application of BMPs. During decommissioning, turbine towers would require disassembly, which could require hot works. The spatial extent is local as fire, under the right conditions (e.g., wind and heat), could move across a landscape rapidly and have the potential to impact areas adjacent to the Lease Boundary.

Solar Siting Areas

Direct Impacts

Direct impacts during decommissioning of the solar arrays include the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

East Solar Field: Impacts from temporary disturbance on Priority Habitat are rated medium in magnitude because approximately 10.4 acres of Priority Habitat could be temporarily disturbed during decommissioning. The duration is rated long term because of the uncertainty associated with revegetation success and the time lag associated with achieving mature shrub-steppe. The likelihood is rated as unavoidable, and the spatial extent is rated limited.

County Well Solar Field: Loss of Priority Habitat from temporary disturbance for the County Well Solar Field is rated negligible for magnitude because no Priority Habitat would be disturbed. The duration is long term. While revegetation would occur following decommissioning, it is likely it will take time for Priority Habitat ecosystems to re-establish following disturbance. The likelihood is rated as unlikely because no Priority Habitat is known to occur in temporary disturbance areas, and the spatial extent is rated as limited.

Sellards Solar Field: Loss of Priority Habitat for Sellards Solar Field is rated low magnitude for temporary disturbance because there are 0.3 acres of Sagebrush Shrub-steppe Priority Habitat within temporary disturbance areas. The duration is long term because of the uncertainty associated with revegetation success and the time lag associated with achieving mature shrub-steppe. The likelihood is rated as feasible for temporary disturbance dependent on potential micrositing that may have occurred during construction to minimize or avoid. The spatial extent is rated as limited.

Loss of Extent of Other Habitat (All Solar Siting Areas)

Impacts of temporary disturbance on other habitat for all Solar Siting Areas are rated negligible in magnitude. The duration is rated short term. The likelihood is rated as unavoidable, and the spatial extent is rated as limited.

Loss of Extent of Special Status Plant Species

East Solar Field: Magnitude is rated low for loss of extent of special status plant species. No special status plant species have been observed during field surveys and areas of temporary disturbance would have been disturbed during construction reducing the likelihood of special status plant species occurring. However, Priority Habitat would be temporarily disturbed. The duration is rated constant. The likelihood is rated as unlikely, and the spatial extent is rated local.

County Well Solar Field: The magnitude of impact is rated negligible. No special status plant species have been observed during field surveys, and no Priority Habitat occurs within temporary disturbance areas. The duration of loss of extent of special status plant species is rated constant. The likelihood is rated as unlikely, and the spatial extent is rated local.

Sellards Solar Field: Magnitude is rated low for loss of extent of special status plant species. No special status plant species have been observed during field surveys and areas of temporary disturbance would have been disturbed during construction reducing the likelihood of special status plant species occurring. However, the habitat mapping indicates 0.3 acres of sagebrush shrub-steppe would be impacted during construction, which is assumed to be required during decommissioning. The duration of loss of extent of special status plant species is rated constant. The likelihood is rated as unlikely, and the spatial extent is rated local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation (All Solar Siting Areas)

The potential exists for habitat degradation to occur during the decommissioning of the solar arrays. Commitments proposed by the Applicant would meet state and county requirements for best practices, but habitat degradation could occur in the form of the introduction of hazardous substances, the potential for surface runoff, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Impact ratings are identical to decommissioning of the turbines and is rated low, long term, feasible, and local.

Habitat Fragmentation (All Solar Siting Areas)

Project decommissioning of the solar arrays has the potential to result in habitat fragmentation in the form of fire risk. The magnitude of impacts on vegetation resources is rated low. The duration is rated long term. The likelihood is rated as unlikely. Decommissioning of the solar arrays is not likely to require hot works. The spatial extent is local.

Battery Energy Storage Systems

No differences in impacts are anticipated among the three proposed locations, and the three BESS are rated together in **Table 4.5-12c** (i.e., not broken out as individual BESS).

Direct Impacts

Direct impacts during decommissioning of the BESS include the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

The assessment of loss of Priority Habitat for the BESS is rated negligible for temporary disturbance. The duration is short term. The likelihood is rated as unlikely, and the spatial extent is rated as limited.

Loss of Extent of Other Habitat

Loss of other habitats is rated negligible in magnitude for temporary disturbance. The duration is rated short term. The likelihood is rated as unavoidable, and the spatial extent is rated as limited.

Loss of Extent of Special Status Plant Species

The magnitude of impact is rated negligible. The duration of loss of extent of special status plant species is rated constant. The likelihood is rated as unlikely, and the spatial extent is rated local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

The potential exists for habitat degradation to occur during the decommissioning of the BESS. Commitments proposed by the Applicant would meet state and county requirements for best practices, but habitat degradation could occur in the form of the introduction of hazardous substances, the potential for surface runoff, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Impact ratings are identical to decommissioning of the turbines, and the impacts from decommissioning of the BESS are rated low, long term, feasible, and local.

Habitat Fragmentation

Project decommissioning of the BESS has the potential to result in habitat fragmentation in the form of fire risk. The impact ratings are identical to the decommissioning of the solar arrays. Impacts are rated low, long term, unlikely, and local.

Substations

No differences in impacts are anticipated among the five proposed locations, and the five substations are rated together in **Table 4.5-12c** (i.e., not broken out as individual substations).

Direct Impacts

Direct impacts during decommissioning of the substations include the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent of Priority Habitat

Magnitude of impact related to loss of Priority Habitat for the substations and substations is rated negligible for temporary disturbance. The duration is short term. The likelihood is rated as unlikely, and the spatial extent is rated as limited.

Loss of Extent of Other Habitat

Magnitude of impact related to loss of other habitats is rated negligible for temporary disturbance. The duration is rated short term. The likelihood is rated as unavoidable, and the spatial extent is rated as limited.

Loss of Extent of Special Status Plant Species

Magnitude of impact is rated negligible. The duration of loss of extent of special status plant species is rated constant. The likelihood is rated as unlikely, and the spatial extent is rated local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

The potential exists for habitat degradation to occur during the decommissioning of the substations. Commitments proposed by the Applicant would meet state and county requirements for best practices, but habitat degradation could occur in the form of the introduction of hazardous substances, the potential for surface runoff, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Impact ratings are identical to decommissioning of the turbines and the impacts from decommissioning of the substations are rated low, long term, feasible, and local.

Habitat Fragmentation

Decommissioning of the substations has the potential to result in habitat fragmentation in the form of fire risk. The impact ratings are identical to the decommissioning of the solar arrays. Impacts are rated low, long term, unlikely, and local.

Comprehensive Project

Impacts from decommissioning of the comprehensive Project consider all Project components together.

Direct Impacts

Direct impacts during decommissioning of the Project include the loss of extent of Priority Habitat, other habitat, and special status species.

Loss of Extent Priority Habitat

The assessment of impacts is the same as Turbine Option 1. Loss of Priority Habitat is rated high in magnitude for temporary disturbance. The duration is long term because of the uncertainty associated with revegetation success and the time lag associated with achieving mature shrub-steppe. The likelihood is rated as unavoidable, and the extent is rated as limited.

Loss of Extent of Other Habitat

The assessment of impacts is the same as Turbine Option 1. Loss of other habitats is rated low in magnitude for temporary disturbance. The duration is rated short term. The likelihood is rated as unavoidable, and the spatial extent is rated as confined.

Loss of Extent of Special Status Plant Species

The assessment of impacts is the same as Turbine Option 1. Loss of extent of special status plant species is rated low in magnitude. The duration of loss of extent of special status plant species is rated constant. The likelihood is rated as unlikely, and the spatial extent is rated as local.

Indirect Impacts

Indirect impacts are classified into two categories: habitat degradation and habitat fragmentation.

Habitat Degradation

The potential exists for habitat degradation to occur during the decommissioning of all Project components. Commitments proposed by the Applicant would meet state and county requirements for best practices, but habitat degradation could occur in the form of the introduction of hazardous substances, the potential for surface runoff, the introduction or spread of invasive plants and noxious weeds, and the deposition of dust. Impact ratings are identical to decommissioning of the turbines and the impacts from decommissioning of all Project components are rated low, long term, feasible, and local.

Habitat Fragmentation

Project decommissioning of all Project components has the potential for habitat fragmentation in the form of fire risk. Impact ratings are identical to decommissioning of the turbines because the turbines present the greatest likelihood for an impact from fire. Impact ratings for all Project components are low, long term, feasible, and local.

4.5.2.4 Recommended Mitigation Measures

This section describes measures that would reduce or compensate for impacts related to vegetation from construction, operation, and decommissioning of the Project. These measures would be implemented in addition

to compliance with the environmental permits, plans, and authorizations required for the Proposed Action. For vegetation resources, measures should be applied following a hierarchy of most effective to least effective: avoid, minimize, restore, compensate. Avoidance of impacts is the best mitigation. A definition of each type of measure as related to vegetation resources that would be impacted by the Project is provided below.

- **Avoid:** refers to altering aspects of the Project such as location, scale, timing, or layout to avoid impacts on vegetation resources
- **Minimize:** refers to considering alternatives to location, size, or layout to create a smaller impact on vegetation resources
- **Restore:** refers to rectifying the impact by repairing, rehabilitating, or reestablishing the affected environment such as revegetating temporary disturbance areas
- **Offset/Compensate:** refers to conducting measures to rehabilitate areas not impacted by the Project to compensate for impacts on vegetation resources
- **Contingency:** refers to monitoring impacts from the Project and taking appropriate corrective actions, when it is not possible to predict with certainty the impact
- EFSEC has identified the following mitigation measures for the Project to avoid and/or minimize impacts on vegetation:

Veg-1:[27] **Tree Avoidance:** Construction would avoid removing or disturbing trees within the Project Lease Boundary. Disturbance to trees includes any disturbance within the drip-line of the tree (i.e., the area from the edge of the outermost branches), including topping, which preserves an intact root system. Disturbance within the drip-line of the tree should be avoided as this can lead to tree mortality. The avoidance area within the drip-line of trees in work areas should be delineated using snow fencing or similar measure to improve the visibility of avoidance zones. Trees cannot be removed without pre-approval. Where tree disturbance cannot be avoided by the Project (e.g., near transmission lines), the number and location of the trees would be provided to EFSEC, along with a statement justifying why avoidance cannot be achieved, and a mitigation plan. The mitigation plan would include replanting trees within the Lease Boundary to maintain the diversity of habitat structures provided by trees and would require approval by EFSEC prior to proceeding.

Rationale: Trees are a rare feature on the landscape that provide habitat value to wildlife species and structural diversity. Replanting trees may be challenging in an arid environment, and there would be a time lag before trees reach the same size and age. Veg-1 seeks to avoid physical disturbance to existing trees.

Veg-2: Pre-Disturbance Surveys for Special Status Plant Species: Special status plant species are known to occur near the Lease Boundary. Areas with increased potential for special status plant species include areas of Priority Habitat and areas identified by the Applicant as potential habitat for woven spore lichen. Where possible, disturbance to Priority Habitat and high potential areas will be avoided, but if avoidance is not possible surveys for special status plant surveys will be conducted. Surveys would be conducted by a qualified professional. Surveys would be conducted prior to both construction and decommissioning activities. All findings would be documented and provided to EFSEC in an annual report. Where special status plant species are encountered within proposed disturbance areas, the Applicant will modify the Project

[27] Veg-: Identifier of numbered mitigation item for Vegetation

design to avoid the species or, where modification is not possible, develop additional mitigation measures based on discussions with EFSEC and WDFW, such as relocation where a species is tolerant of relocation; minimization; or other form of mitigation. Mitigation plans for encountered special status plant species will be provided to EFSEC for consideration and to provide additional direction. Any modifications to Project design would also be provided to EFSEC as part of the report. An environmental monitor would be required to track any mitigation associated with the finding of special status plant species.

Rationale: This mitigation measure minimizes potential impacts on special status plant species by providing an opportunity to modify the design to avoid any identified plants, prior to actual disturbance activities during construction and decommissioning. It also provides the opportunity to apply additional mitigation should special status plant species be encountered within disturbance areas.

Veg-3: Special Status Plant Species Education: The environmental orientation provided to workers on site would include information on special status plant species. This would include diagnostic characteristics, suitable habitat descriptions, and photos of special status plant species with potential to occur within the Lease Boundary. A protocol would be established for any chance find by workers, who would notify the environmental monitor on site prior to proceeding with work. The environmental monitoring would report any findings of special status plant species to EFSEC in a report, and EFSEC would consider these reports and provide additional direction on actions to address any impacts. Workers' completion of the environmental orientation would be tracked by the Applicant and provided in an annual report to EFSEC.

Rationale: This mitigation measure minimizes impacts on special status plant species by educating workers in identification and suitable habitat.

Veg-4: As-Built Report, Offset Calculation, and Monitoring of Revegetation: Within 60 days of completing construction, the Applicant would provide an as-built report that documents the amount of temporary and permanent disturbance associated with the Project. This would include associated maps and georeferenced spatial files. The as-built report would be factored into the final calculation of habitat offset based on the Applicant-provided ratios. The acreages of modified habitat planted for the Project under the solar arrays would also be included in this report. EFSEC would determine the number of years that vegetation monitoring of temporary disturbance and modified habitat would be conducted and the success criteria for revegetation. The success criteria would include measurable parameters that the Applicant would measure to determine whether successful revegetation has occurred. The Applicant would submit annual reports for each year of vegetation monitoring following construction to document the success of revegetation. At the end of the vegetation monitoring period, as determined by EFSEC, areas of modified habitat and revegetated temporary disturbance that have met the success criteria would be eligible for offset by the Applicant at the respective ratios. Any areas of modified habitat or temporary disturbance that do not meet the success criteria after completion of revegetation monitoring would be considered permanent disturbance, and this would be added to the offset requirement.

Rationale: This mitigation measure addresses habitat offset by providing a final calculation of offset requirements based on actual disturbance. In addition, it addresses the uncertainty associated with the success of revegetation and, in particular, of restoring shrub-steppe ecosystems.

Veg-5: Operation and Decommissioning Dust Control Plan: A dust control plan would be prepared for Project operation and decommissioning, similar to the dust control plan presented by the Applicant. The plan would minimize impacts on vegetation from dust during the Operation and Decommissioning stages of the Project.

Rationale: This mitigation measure minimizes indirect impacts from dust during operation and decommissioning.

Veg-6: Decommissioning Legislated Requirements: Mitigation measures that would be applied during decommissioning would follow the applicable legislated requirements at the time of decommissioning.

Rationale: This mitigation measure enables adjustment of requirements based on changes in legislation once decommissioning occurs, based on the requirements at that time.

Veg-7: Detailed Site Restoration Plan: The Detailed Site Restoration Plan is a required, regulatory document. It would be prepared and submitted for approval by EFSEC for final revegetation prior to Project decommissioning for the temporary and permanent disturbance areas. It would be adapted to include modified habitat.

Rationale: The Detailed Site Restoration Plan would be a living document. It would include the methods, success criteria, monitoring, and reporting for revegetation at the end of the Project life. It would also include provisions for adaptive management and would be prepared based on any lessons learned from implementing the revegetation planned for the temporary disturbance from Project construction as described in Appendix N of the 2022 ASC (Appendix N, Horse Heave Wind Farm, LLC 2022)..

Veg-8: Decommissioning Noxious Weed Management Plan: A Noxious Weed Management Plan (or extension of the current plan) to include prevention and control during decommissioning of the Project would be prepared. This Plan would include monitoring of the area for three years following decommissioning of the Project.

Rationale: This mitigation measure addresses noxious weeds during decommissioning. It is designed to minimize the introduction and spread of noxious weeds during decommissioning.

Veg-9: Maintenance of Solar Array Fence: During Project operation, the solar array fence would be maintained, including removal of vegetation material that may become entwined in the fence.

Rationale: Vegetation material entwined within the solar array fence presents a fuel source for fire. Maintenance and removal would minimize this risk.

Additional mitigation measures identified in the Wildlife and Wildlife Habitat Section (Chapter 4.6) are also applicable to vegetation and are provided below.

Hab-2: Transmission line crossings of canyons and draws would be minimized. Where crossings are required, the Applicant would provide EFSEC with rationale for the crossings and propose additional mitigation measures to reduce potential barriers to movement (e.g., retaining vegetation under transmission lines) and wildlife collisions (e.g., installing flight diverters on overhead lines). EFSEC would approve the final transmission line layout, mitigation, and adaptive management strategy.

Rationale: This mitigation measure reduces potential Project-related barriers to wildlife movement while allowing for continued monitoring and adaptive management of potential Project-related barriers.

Hab-3: Temporary laydown areas. Temporary laydown areas would be situated out of native shrub-steppe habitat. Where temporary disturbance of shrub-steppe habitat is required, the Applicant would provide EFSEC with rationale and propose additional mitigation measures to reduce habitat loss.

Rationale: This mitigation measure avoids and reduces impacts on habitat while allowing for adaptive management of potential Project-related habitat loss.

Hab-4: The Applicant, in consultation with EFSEC, would establish a Pre-operational Technical Advisory Group (PTAG) and Technical Advisory Committee (TAC). The PTAG would be established at least one year prior to construction and would be responsible for reviewing and providing technical advice on documents produced by the Applicant related to wildlife and wildlife habitat. The PTAG would also provide advice on adaptive management. The PTAG would be responsible for, at a minimum:

- Reviewing and providing technical advice on Project wildlife and habitat management plans (e.g., ferruginous hawk management plan)
- Reviewing and providing advice to EFSEC on pre-design and pre-construction data collection requirements to address Project mitigation measures and conditions of management plans
- Reviewing and providing advice to EFSEC on the final Project design
- Advising on thresholds to be applied to the Project that would trigger the requirement for additional mitigation measures

The Applicant, in consultation with EFSEC, would establish a TAC prior to Project operation. The PTAG would cease to exist once the Applicant has completed all planned construction and would be replaced by the TAC, which would exist for the life of the Project. The TAC would be responsible for, at a minimum:

- Advising on the monitoring of mitigation effectiveness and reviewing monitoring reports
- Advising on additional or new mitigation measures that would be implemented by the Applicant to address exceedances of thresholds
- Reviewing the results of annual data generated from surveys and incidental observations and providing recommendations for alternative mitigation and adaptive management strategies, as well as advising on aspects of existing mitigation that are no longer needed.

The PTAG and TAC may include representation by WDFW, the Washington Department of Natural Resources, interested tribes, Benton County, and the USFWS. The PTAG and TAC may also include local interest groups, not-for-profit groups, and landowners. The exact composition of the PTAG and TAC would be determined through discussions between the Applicant and EFSEC and would depend on the relevance and/or availability of proposed members.

Rationale: This mitigation measure avoids and reduces impacts on wildlife and habitat, including habitat loss, wildlife disturbance, barriers to movement, and wildlife mortality. Further the mitigation measure will allow for continued monitoring and adaptive management of potential Project-related impacts.

Hab-6: Final Design: The Applicant would work with EFSEC, with advice from the PTAG, on the development of the final Project layout and design, including the application of Applicant commitments and recommended mitigation measures.

Rationale: This mitigation measure avoids and reduces potential habitat loss and disturbance to wildlife (indirect habitat loss).

Hab-7: All roadways constructed for the Project during the construction and operation phases would be removed and restored during decommissioning. The Applicant would provide EFSEC with rationale and propose additional mitigation measures if roadways are not decommissioned post-operation.

Rationale: This mitigation measure restores habitat post-operation and reduces habitat loss.

Hab-8: The Applicant would be required to provide compensation habitat loss and alteration (indirect habitat loss) (See Hab-5, Veg-4) through one or more actions of land acquisition, onsite easement and restoration (excluding areas impacted by the Project such as temporary laydowns), and/or fee-based mitigation.

The Applicant would prioritize development of conservation easements (Option 1[28] in the Applicant's Draft Wildlife and Habitat Mitigation Plan) and would compensate for the remaining permanent and altered (indirect) impacts by providing money to WDFW, or a third party identified by WDFW, and agreed to by EFSEC, to purchase other lands suitable as in-kind and/or enhancement mitigation. The Applicant would provide EFSEC, for review and approval, with rationale for fee-based mitigation (Options 2 and 3 in the Applicant's Draft Wildlife and Habitat Mitigation Plan) including a description of how much compensatory habitat would be addressed through Option 1 (conservation easement) and rationale for why fee-based mitigation is required.

The fee-based mitigation includes a per acre fee that would be determined by market rates and land sales within the general vicinity of the Lease Boundary for lands containing comparable habitat types and quality present within the Lease Boundary. The per acre fee would be developed by the Applicant in consultation with WDFW and approved by EFSEC. The Total Financial Obligation (TFO) would be determined by multiplying the cost per acre by the total Compensatory Mitigation Acres (CMA) remaining after the application of Option 1 mitigation strategy and would include a one-time 15 percent premium to cover administration and management costs for the purchased lands. The TFO for compensatory mitigation would be determined and agreed to by EFSEC 90 days before construction. If construction has not begun within 12 months of the approval of the TFO, the TFO identified would expire and be recalculated prior to beginning construction. The TFO would be calculated based on the following:

Average Comparable Land Sale Cost (per acre)*(CMA-Option 1 Acres)*1.15 = TFO

In addition to the wildlife and habitat mitigation measures, the following measures developed for the Vegetation chapter are applicable to wildlife and habitat.

Rationale: This mitigation measure clarifies the process to be followed in selection of offsetting habitat.

4.5.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-

[28] Applicant's Draft Wildlife and Habitat Mitigation Plan identifies three compensation options: Option 1 – Conservation easement within or adjacent to the Lease Boundary; Option 2 – Annual fee or lump sum payment provided to WDFW; Option 3 – payment to local land trusts, conservation organizations, or local tribes to support conservation projects.

recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project made in response to comments received on the EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the BPA. Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[29]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

[29] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

A summary of habitat types that occur within the updated East Solar Array fence is provided in **Table 4.5-11**. An updated disturbance layer was not provided as part of the 2022 ASC, but because these areas are all within the updated fence the impacts are considered permanent discussed in Section 4.5.2.1. **Table 4.5-11** also includes the summary of the areas within the original East Solar Array fence for comparison, also considered permanent impacts. While the overall size of the solar arrays in the East Solar Siting Area has reduced, impacts to Priority Habitat remain similar to the original solar array design. Reductions are primarily within rabbitbrush shrubland, agriculture land, and planted grassland.

Table 4.5-11: Comparison of Habitat Types and Subtypes in the Updated and Original East Solar Array Fence

Habitat Type	Updated East Solar Array Fence	Original East Solar Array Fence
Agriculture Land	495.4	1,052.9
Developed/Disturbed	-	-
Grassland		
Eastside (Interior) Grassland[(a)]	67.0	72.5
Non-native Grassland	1.57	21.6
Planted Grassland	-	140.3
Shrubland		
Dwarf Shrub-steppe[(a)]	-	-
Rabbitbrush Shrubland	74.1	706.1
Sagebrush Shrub-steppe[(a)]	0.9	0.3
Total	**639.0**	**1993.9**

Source: Horse Heaven Wind Farm, LLC 2021b; Horse Heaven Wind Farm, LLC 2023
Notes: Calculations of areas were completed independently using spatial data provided by the Applicant (Horse Heaven Wind Farm, LLC 2021b; Horse Heaven Wind Farm, LLC 2023).
(a) Washington State Department of Fish and Wildlife Priority Habitats

Similarly, the Final ASC includes modifications to the turbine layout including the removal of 13 turbines and the adjustment of location for three turbines from Turbine Option 1 and the removal of three turbines from Turbine Option 2. The removal of the turbines for Turbine Option 1 reduces impacts to agricultural land, non-native grassland, and planted grassland. The removal of the turbines for Turbine Option 2 reduces impacts to agricultural land only. No Priority Habitat is located in the area where the turbines were removed. The turbines that were adjusted in location for Turbine Option 1 all occur in agriculture land and were moved to areas classified as agriculture land. No Priority Habitat is located within the proposed or previously proposed areas of the adjusted turbines.

The Applicant provided additional commitments as part of the Final ASC. Those applicable to vegetation resources are provided below (Horse Heaven Wind Farm, LLC 2023).

- The Project was sited outside of wetlands and waters to the extent feasible to avoid and minimize impacts to these resources, which will also avoid impacts to fish and minimize impacts to wildlife species that use these habitats.
- Following construction, temporarily disturbed areas will be revegetated with native or non-invasive, non-persistent non-native plant species as described in the Revegetation and Noxious Weed Management Plan (Appendix N, Horse Heaven Wind Farm, LLC 2022).

- Prior to construction, habitat surveys will be conducted within the Solar Siting Areas and portions of the Micrositing Corridor that were not surveyed in 2020 or 2021. These habitat surveys will focus on documenting areas of sagebrush shrub-steppe habitat. Sagebrush shrub-steppe habitat would be avoided to the extent possible. If avoidance is not possible, mitigation for impacts to sagebrush shrub-steppe habitat would be developed in consultation with the applicable agencies.
- Prior to construction, special status plant surveys will be conducted within the Solar Siting Areas and portions of the Project Micrositing Corridor that were not surveyed in 2020 or 2021.
- The Turbine layouts presented in this Final ASC include a reduction in the total number of Turbines (reduced from the previous maximum of 244 Turbines to the current maximum of 231 Turbines for Option 1; and reduced from the previous 150 Turbines to the current maximum of 147 Turbines for Option 2). In addition, solar panels in proximity to I-82 have been removed, such that all panels will be approximately 1 mile east of I-82. These layout modifications result in a reduction in impacts to habitat and wildlife.

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains similar due to the turbines and other Project infrastructure that remains. The additional Applicant commitments identified above do not change the impact ratings previously provided for vegetation in the Draft EIS, and the impact ratings remain the same.

4.5.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (Washington Administrative Code 197-11-794).

This EIS weighs the impacts on vegetation that may result from the Project with mitigation and makes a resulting determination of significance for each impact in **Tables 4.5-12a, 4.5-12b, and 4.5-12c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to vegetation resources.

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Table 4.5-12a: Summary of Potential Impacts on Vegetation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent of Priority Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Priority Habitat – Temporary Disturbance	East Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Medium	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Priority Habitat – Temporary Disturbance	Sellards Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Low	Long Term	Feasible	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report and Offset Calculation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Table 4.5-12a: Summary of Potential Impacts on Vegetation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent of Priority Habitat – Temporary Disturbance	County Well Solar Field BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Negligible	Long Term	Unlikely	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Priority Habitat - Permanent Disturbance	Turbine Option 1 Turbine Option 2	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Low	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Priority Habitat - Permanent Disturbance	East Solar Field **Comprehensive Project**	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Table 4.5-12a: Summary of Potential Impacts on Vegetation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent of Priority Habitat – Permanent Disturbance	County Well Solar Field Sellards Solar Field BESS Substations	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Negligible	Long Term	Unlikely	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent Other Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Low	Short Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified
Loss of Extent Other Habitat – Temporary Disturbance	Solar Arrays BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Negligible	Short Term	Unavoidable	Limited	**Veg-1**: Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified
Loss of Extent of Other Habitat – Permanent Disturbance	East Solar Field **Comprehensive Project**	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with other habitat.	Low	Long Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified
Loss of Extent of Other Habitat – Permanent Disturbance	Turbine Option 1 Turbine Option 2 County Well Solar Field Sellards Solar Field BESS Substations	Site clearing associated with permanent disturbance would result in direct loss of acreage associated with other habitat.	Negligible	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation	None identified

Table 4.5-12a: Summary of Potential Impacts on Vegetation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent of Special Status Plant Species	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Site clearing associated with the construction of the Project would result in direct loss of populations of special status plant species or their habitat.	Medium	Constant	Feasible	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Special Status Plant Species	East Solar Field	Site clearing associated with the construction of the Project would result in direct loss of populations of special status plant species or their habitat	Medium	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Special Status Plant Species	Sellards Solar Field	Site clearing associated with construction of the Project would result in direct loss of populations of special status plant species or their habitat.	Low	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Table 4.5-12a: Summary of Potential Impacts on Vegetation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent of Special Status Plant Species	County Well Solar Field BESS Substations	Site clearing associated with construction of the Project would result in direct loss of populations of special status plant species or their habitat.	Negligible	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-3:** Special Status Plant Species Education **Veg-4:** As-Built Report, Offset Calculation, and Monitoring of Revegetation **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Habitat Degradation	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction activities could result in habitat degradation from introduction of hazardous material, surface runoff, introduction and spread of invasive plants or noxious weeds, and deposition of dust.	Low	Long Term	Feasible	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified
Habitat Fragmentation	Turbine Option 1 Turbine Option 2 BESS **Comprehensive Project**	Construction activities could result in habitat fragmentation from fire.	Low	Long Term	Feasible	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified
Habitat Fragmentation	Solar Arrays BESS Substations	Construction activities could result in habitat fragmentation from fire.	Low	Long Term	Unlikely	Local	**Hab-2:** Transmission Line **Hab-3:** Temporary laydown areas **Hab-4:** Pre-operational Technical Advisory Group **Hab-6:** Final Design	None identified

Notes:
[a] The impacts related to each component including “comprehensive Project” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; WDFW = Washington Department of Fish and Wildlife

Table 4.5-12b: Summary of Potential Impacts on Vegetation during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vegetation Maintenance	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	During Project operation, vegetation may require maintenance, such as cutting or removal, for areas under the solar arrays, or along roadways.	Negligible	Long Term	Probable	Confined	No mitigation identified	None identified
Vegetation Maintenance	BESS Substations	During Project operation, vegetation may require maintenance, such as cutting or removal, for areas under the solar arrays, or along roadways.	Negligible	Long Term	Probable	Limited	No mitigation Identified	None identified
Habitat Degradation	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Project operations could result in habitat degradation from the introduction of hazardous substances, introduction and spread of noxious weeds and invasive plants, and deposition of dust.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Hab-4:** Pre-operational Technical Advisory Group	None identified
Habitat Fragmentation	Turbine Option 1 Turbine Option 2	Project operations could result in habitat fragmentation from edge effects and fire.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Hab-4:** Pre-operational Technical Advisory Group	None identified
Habitat Fragmentation	Solar Arrays BESS **Comprehensive Project**	Project operations could result in habitat fragmentation from edge effects and fire.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-9:** Maintenance of Solar Array Fence **Hab-4:** Pre-operational Technical Advisory Group	None identified
Habitat Fragmentation	Substations	Project operations could result in habitat fragmentation from edge effects and fire.	Low	Long Term	Unlikely	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-9:** Maintenance of Solar Array Fence **Hab-4:** Pre-operational Technical Advisory Group	None identified

Notes:
[a] The impacts related to each component including “comprehensive Project” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.

BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; WDFW = Washington Department of Fish and Wildlife

Table 4.5-12c: Summary of Potential Impacts on Vegetation during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent of Priority Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Decommissioning of the Project would require temporary disturbance areas to remove Project components, which would result in direct loss of WDFW Priority Habitat.	High	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Priority Habitat – Temporary Disturbance	East Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Medium	Long Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent of Priority Habitat – Temporary Disturbance	County Well Solar Field BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Negligible	Short Term	Unlikely	Limited	**Veg-1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Table 4.5-12c: Summary of Potential Impacts on Vegetation during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent of Priority Habitat – Temporary Disturbance	Sellards Solar Field	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with WDFW Priority Habitat.	Low	Long Term	Feasible	Limited	**Veg1:** Tree Avoidance **Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Loss of Extent Other Habitat – Temporary Disturbance	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Low	Short Term	Unavoidable	Confined	**Veg-1:** Tree Avoidance **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan	None identified
Loss of Extent Other Habitat – Temporary Disturbance	Solar Arrays BESS Substations	Site clearing associated with temporary disturbance would result in direct loss of acreage associated with other habitat.	Negligible	Short Term	Unavoidable	Limited	**Veg-1:** Tree Avoidance **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan	None identified
Loss of Extent Special Status Plant Species	Turbine Option 1 Turbine Option 2 East Solar Field **Comprehensive Project**	Site clearing associated with decommissioning of the Project would result in direct loss of populations of special status plant species or their habitat.	Low	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Table 4.5-12c: Summary of Potential Impacts on Vegetation during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Loss of Extent Special Status Plant Species	County Well Solar Field Sellards Solar Field BESS Substations	Site clearing associated with decommissioning of the Project would result in direct loss of populations of special status plant species or their habitat.	Negligible	Constant	Unlikely	Local	**Veg-2:** Pre-Disturbance Surveys for Special Status Plant Species **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Habitat Degradation	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Project decommissioning could result in habitat degradation from the introduction of hazardous material, surface runoff, introduction or spread of invasive plant or noxious weeds, and the deposition of dust.	Low	Long Term	Feasible	Local	**Veg-5:** Operation and Decommissioning Dust Control Plan **Veg-6:** Decommissioning Legislated Requirements **Veg-7:** Detailed Site Restoration Plan **Veg-8:** Decommissioning Noxious Weed Management Plan **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Habitat Fragmentation	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Project decommissioning could result in habitat fragmentation from fire.	Low	Long Term	Feasible	Local	**Veg-6:** Decommissioning Legislated Requirements **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified
Habitat Fragmentation	Solar Arrays BESS Substations	Project decommissioning could result in habitat fragmentation from fire.	Low	Long Term	Unlikely	Local	**Veg-6:** Decommissioning Legislated Requirements **Hab-7:** Road Decommissioning **Hab-8:** Compensation Habitat Loss and Alteration	None identified

Notes:
[a] The impacts related to each component including “comprehensive Project” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; WDFW = Washington Department of Fish and Wildlife

4.5.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to vegetation from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.6 Wildlife and Habitat

This section describes the potential impacts on wildlife and habitat resources, identified in Section 3.6, that could result from the construction, operation, and decommissioning of the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative.

The evaluation presented here relies on the impact scale defined in Section 4.1 and summarized in **Table 4.6-1**. Acreage impacts presented in this section were calculated independently from the spatial data provided by Horse Heaven Wind Farm, LLC (Applicant) (Horse Heaven Wind Farm, LLC 2021a).

Table 4.6-1: Impact Rating Table for Wildlife and Habitat from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

4.6.1 Method of Analysis

In accordance with the Washington State Environmental Policy Act, this Environmental Impact Statement (EIS) weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors, including the Applicant's commitments, when determining the significance of identified potential impacts (WAC 197-11-330).

Applicant Commitments

The Applicant would incorporate an adaptive approach for the conservation of wildlife potentially impacted by the Project in coordination with the Technical Advisory Committee (TAC) prior to Project operation.

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 Application for Site Certification (ASC) and taken into consideration in the characterization of potential impacts on wildlife and habitat are discussed in Section 2.3 and summarized below (Horse Heaven Wind Farm, LLC 2022).

- To minimize impacts to wildlife, baseline studies were conducted at the Project consistent with the Washington Department of Fish and Wildlife (WDFW) Wind Power Guidelines (WDFW 2009), the U.S. Fish and Wildlife Service's (USFWS) 2012 Final Land-Based Wind Energy Guidelines (USFWS 2012), the 2013 USFWS Eagle Conservation Plan Guidance Module 1 – Land Based Wind Energy (USFWS 2013), and the USFWS 2016 Eagle Rule Revision (USFWS 2016). In order to mitigate and avoid impacts to wildlife resources, the Applicant used the results of these baseline studies to inform the Project's layout design.
- Project facilities were sited on previously disturbed (e.g., cultivated cropland) areas to the extent feasible to avoid impacts to native habitats and associated wildlife species.
- The Project will use industry standard best management practices to minimize impacts to vegetation, waters, and wildlife.
- The Applicant has drafted a Habitat Mitigation Plan (Appendix L of the 2022 ASC) for the wind energy generation areas of the Project, consistent with the Washington Department of Fish and Wildlife (WDFW) Wind Power Guidelines, where applicable (WDFW 2009). The Habitat Mitigation Plan addresses mitigation for the solar and BESS elements, consistent with best available industry practices. The Habitat Mitigation Plan includes provisions that specifically address minimizing impacts on ferruginous hawk and other raptors, along with criteria for how mitigation will be implemented to best address potential impacts to nesting ferruginous hawk and wildlife movement, while still complying with the WDFW Wind Power Guidelines (WDFW 2009)[30].
- To minimize impacts on wildlife, baseline studies were conducted at the Project consistent with the WDFW Wind Power Guidelines (WDFW 2009), the U.S. Fish and Wildlife Service's (USFWS) 2012 Final Land-Based Wind Energy Guidelines (USFWS 2012), the 2013 USFWS Eagle Conservation Plan Guidance Module 1 – Land-Based Wind Energy (USFWS 2013), and the USFWS 2016 Eagle Rule Revision (USFWS 2016). To mitigate and avoid wildlife resources, the Applicant used the results of these baseline studies to inform the Project's layout design.
- Project facilities would be sited on previously disturbed areas (e.g., cultivated cropland) to the extent feasible to avoid impacts on native habitats and associated wildlife species.
- The Project would use industry standard best management practices to minimize impacts on vegetation, water, and wildlife.
- To the extent feasible, the solar array fencelines have been designed to enclose smaller solar arrays within the Solar Siting Areas rather than enclosing each entire Solar Siting Area, which will minimize habitat fragmentation and allow wildlife passage through the Solar Siting Areas. Fencing will be designed to be at

[30] The proposed mitigation measures are expected to reduce impacts to ferruginous hawk and other raptors in concert with mitigation measures recommended in Section 4.6.2.5 The revised Appendix L: Draft Wildlife and Habitat Mitigation Plan describes criteria to be applied in selecting mitigation sites, monitoring and reporting requirements, and success criteria that describe how the Applicant would verify the effectiveness of mitigation.

least 4 inches above ground and will not have razor wire at the top. Consistent with recommended mitigation measure Spec-13 in the Draft Environmental Impact Statement (EFSEC 2022), the fencing will not be barbed wire.

- The Project would be sited outside of wetlands and waters to the extent feasible to avoid and minimize impacts on these resources, which would also avoid impacts on fish and minimize impacts on wildlife species that use these habitats.
- If the final design results in impacts on waters of the state that cannot be avoided, the Applicant would work with the Washington Energy Facility Site Evaluation Council (EFSEC) and WDFW to confirm whether a Hydraulic Project Approval is required and would prepare an application accordingly.
- Consistent with recommended mitigation measure Spec-4 in the Draft Environmental Impact Statement (EFSEC 2022), during construction, published WDFW PHS management recommendations WDFW-recommended seasonal buffers (per Larsen et al. 2004) for burrowing owl nests would be observed to avoid disturbing nesting burrowing owls, if present. If impacts to potentially suitable habitat cannot be avoided during final design, the Applicant would consult with WDFW regarding the need for burrowing owl surveys prior to construction, including surveys to determine habitat suitability for burrowing owls, and surveys for breeding owls if suitable habitat is present. The Applicant would minimize bird and bat collisions with Project infrastructure by implementing down-shield lighting (e.g. for permanent lighting at the substations and operations and maintenance [O&M] facilities) that would be sited, limited in intensity, and hooded in a manner that prevents the lighting from projecting onto any adjacent properties, roadways, and waterways; lighting would be motion activated where practical (i.e., excluding security lighting).
- The Applicant would acquire any required federal approvals as described in Section 2.23 of the ASC. The Applicant would continue ongoing coordination with the USFWS (Mathew Stuber, Eagle Coordinator, Columbia Pacific Northwest Region) regarding an eagle take permit for incidental take of bald and golden eagles and would continue to evaluate eagle risk to determine if an eagle take permit is appropriate considering the use of the Project area by bald and golden eagles.
- The Applicant has prepared a Bird and Bat Conservation Strategy that describes the surveys conducted, avoidance and minimization, and potential impacts to birds and bats and their habitat as a result of construction and operation of the Project (Appendix M of the ASC).
- The Turbine layouts presented in this Final ASC include a reduction in the total number of Turbines (reduced from the previous maximum of 244 Turbines to the current maximum of 231 Turbines for Option 1; and reduced from the previous 150 Turbines to the current maximum of 147 Turbines for Option 2). In addition, solar panels in proximity to I-82 have been removed, such that all panels will be approximately 1 mile east of I-82. These layout modifications result in a reduction in impacts to habitat and wildlife.

Collector and Transmission Lines

- The up-to-19-mile transmission line would be located in areas where the Applicant has site control and, to the extent possible, in areas where previous disturbance has occurred, thereby minimizing impacts on habitat and associated wildlife.
- Where applicable, the Project's aboveground power lines and collection systems would be designed and constructed to minimize avian electrocution, referencing guidelines outlined in Avian Power Line Interaction

Committee standards (APLIC 2006, 2012). Overhead lines may be constructed in select locations to span intermittent streams, if applicable based on the final Project design.

- The underground communication cables and power collection system would be buried along the access roads in trenches extending from each of the turbines to the Project's substation where practicable; lines would be buried along both private and public rights-of-way.

Construction

Compliance and Reporting

- The Applicant would comply with all applicable federal, state, and local environmental laws, orders, and regulations.
- Prior to construction, all supervisory construction personnel would be instructed on the Bird and Bat Conservation Strategy and wildlife resource protection measures, including: 1) applicable federal and state laws (e.g., those that prohibit animal collection or removal) and 2) the importance of these resources and the purpose and necessity of protecting the resources, and ensuring this information is disseminated to applicable contractor personnel, including the correct reporting procedures.
- Construction personnel would be trained in the following areas when appropriate: awareness of sensitive bird species, potential bird nesting areas, potential bat roosting/breeding habitat, and general wildlife issues.
- Personnel would be instructed to use the Applicant's incidental reporting process to document bird or bat casualties during construction of the Project.

Roads

- Traffic would be restricted to roads associated with the Project; use of unimproved roads would be minimized to the extent possible. Following Project construction, temporary access roads made for component delivery and not needed for site operations would be restored to native vegetation.
- Speed limits would be set to ensure safe and efficient traffic flow; signs would be placed along roads, as necessary, to identify speed limits, travel restrictions, and other standard traffic control information.

Stormwater and Erosion

- A Storm Water Pollution Prevention Plan (SWPPP) would be prepared and implemented, as required by the U.S. Environmental Protection Agency and the Washington Department of Ecology; the SWPPP would include standard sediment control devices (e.g., silt fences, straw bales, netting, soil stabilizers, check dams) to minimize soil erosion during and after construction.
- Stormwater management practices would be implemented to minimize open-water resources that can attract birds and bats.
- HHWF will be implemented for revegetation, soil stabilization, and erosion reduction measures to ensure temporary use areas are restored when no longer needed.
- A Temporary Erosion and Sediment Control Plan would be implemented for revegetation, soil stabilization, and erosion reduction measures to ensure that temporary use areas are restored when no longer needed.

Wildlife and Vegetation

- The existing road network would be used to reduce the need for road construction, as well as minimizing disturbance to Priority shrub-steppe habitat as defined by WDFW (2009). The Applicant would avoid siting Project components in wetlands and waterbodies.
- Per WDFW recommendations, wind turbine buffer zones would be established around known raptor nests (0.25-mile buffers) if site evaluations show that proposed construction activities would pose a risk of nest abandonment or failure to avian species of concern.
- During construction, WDFW-published seasonal buffers (per Larsen et al. 2004) for ferruginous hawk nests will be observed to avoid disturbing nesting ferruginous hawks. Brief human access and intermittent ground-based activities should be avoided within a distance of 250 meters (820 feet) of nests during the hawks' most sensitive period (March 1 to May 31). Prolonged activities (0.5 hour to several days) should be avoided, and noisy, prolonged activities should not occur, within 1 kilometer (0.6 mile) of nests during the breeding season (March 1 to August 15).
- Prior to construction, habitat surveys will be conducted within the Solar Siting Areas and portions of the Micrositing Corridor that were not surveyed in 2020 or 2021. These habitat surveys will focus on documenting areas of sagebrush shrub-steppe habitat. Sagebrush shrub-steppe habitat would be avoided to the extent possible. If avoidance is not possible, mitigation for impacts to sagebrush shrub-steppe habitat would be developed in consultation with the applicable agencies.
- All permanent met towers would be un-guyed to minimize collision risk for wildlife.
- During construction, existing trees, vegetation, water resources, and wildlife habitat would be protected and preserved to the extent practical.
- Noxious weed control measures would be implemented as specified by county, state, and federal requirements.
- All herbicide and pesticide mixing and applications would be conducted in accordance with all federal, state, and local laws and regulations and the specific product's label; herbicides and pesticides would only be directly applied to localized spots and will not be applied by broadcasting techniques
- The Applicant does not anticipate using pesticides during Project construction or operation. If unforeseen circumstances arise that require the use of pesticides, the Applicant would consult with WDFW and EFSEC regarding use of pesticides to avoid and minimize impacts to burrowing owl (per Larsen et al. 2004).
- The Applicant will limit construction disturbance by flagging any sensitive areas (e.g., wetlands, rare plant populations) and will conduct ongoing environmental monitoring during construction to ensure flagged areas are avoided.
- Gravel would be placed at least 5 feet around each turbine foundation to discourage small mammals and reptiles from burrowing under or near turbine bases.
- All trash would be covered in containers, and work sites would be cleared regularly of any garbage and debris related to food.
- Personnel's pets would not be allowed at the Project.

- To the extent feasible, the area required for Project construction and operation would be minimized. The Applicant would develop a restoration plan for restoring all areas of temporary disturbance to previous conditions, including the use of native species when seeding or planting during restoration. The restoration plan would ensure that:
  - All areas disturbed temporarily by Project construction would be restored, including temporary disturbance areas around structure construction sites, laydown/ staging areas, and temporary access roads.
  - Topsoil salvage would be included in all grading activities.
  - Conduct habitat restoration activities in accordance with obligations in the wind leases.

Operation and Maintenance

Operational Procedures

- The Applicant would conduct two years of standardized post-construction fatality monitoring to assess impacts of Turbine operation on birds and bats. Proposed post-construction fatality monitoring is described in the Applicant's BBCS (Appendix M of the ASC). The Applicant would also conduct five years of post-construction raptor nest monitoring, with specific emphasis on determining whether documented ferruginous hawk nests are active.
- All carrion (with the exception of birds and bats) discovered on site during regular maintenance activities would be removed and disposed of in an appropriate manner to avoid attracting eagles and other raptors; birds and bats discovered on site would be addressed in conformance with the Project's incidental reporting process and the post-construction fatality monitoring protocols.
- Appropriate stormwater management practices that do not create attractions for birds and bats would be implemented.
- Fire hazards from vehicles and human activities would be reduced (e.g., use of spark arrestors on power equipment, avoiding driving vehicles off roads, and allowing smoking in designated areas only).
- Vehicle speeds would be limited to 25 miles per hour to avoid wildlife collisions.
- Noxious weed control measures would be implemented, as specified by county, state, and federal requirements.
- Other than maintenance vehicles, which would park at the entrance of turbines for maintenance purposes, parts and equipment that can be used as cover for prey would not be stored at the base of turbines while turbines are operating.

Training

- All of the Applicant's employees and contractors working on site would receive worker awareness training for identifying and responding to encounters with sensitive biological resources, including avian and bat species. The training would:
  - Be conducted by the Applicant or the Applicant's designee

- Instruct employees, contractors, and site visitors to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship and nesting) seasons
- Include instruction on identification and protection of plant and wildlife species and significant natural plant community habitats, microtrash and its effects, fire protection measures, and measures to minimize the spread of weeds during operation, as well as hazardous material spill and containment measures
- Include a flyer in the O&M building and/or construction trailer(s) detailing information on potential state and federal special status animal and plant species that could be discovered on the Project site
- Include a Wildlife Incident Reporting and Handling System that describes the steps O&M staff would take in the event of a wildlife fatality
- Include an overview of the distribution, general behavior, and ecology of golden and bald eagles. Employees would be informed that they are not authorized to approach, handle, or otherwise move any eagles, parts of eagles (i.e. feathers), eggs, or nests during construction or operation, regardless of whether the eagles are alive, injured, or deceased. In the event of an eagle fatality, a structured reporting system would be followed to notify the Applicant's project managers and follow the appropriate notification protocols to report the fatality to the USFWS within 24 hours of positive identification of the fatality as an eagle.

Ferruginous Hawk Avoidance and Minimization Measures

- Land leases along the Columbia River with private landowners were dropped from consideration to avoid development in proximity to suitable raptor nesting habitat along the cliffs adjacent to the river.
- In accordance with project-specific guidance provided by WDFW, Turbines nearest to Nest 03 were repositioned to be more than 0.5 mile away from the nest, which exceeded the 0.25-mile setback recommendation (M. Ritter, pers comm) exceeds published WDFW PHS guidance for ferruginous hawk (Larsen et al. 2004).
- Collection lines were co-located along existing roads and proposed access roads to reduce disturbance to raptor foraging habitat and interactions with aboveground electrical lines and poles.
- Project infrastructure was sited in previously disturbed areas to the extent feasible to avoid impacts to suitable ferruginous hawk foraging habitat in shrub-steppe and grassland habitats.
- Overhead electrical infrastructure will conform with Avian Power Line Interaction Committee suggested practices for reducing avian electrocution (APLIC 2006).
- All permanent meteorological towers will be unguyed to minimize collision risk for ferruginous hawks and other raptors.
- Development in and near draws and canyons was minimized to the extent practicable to reduce impacts to suitable raptor foraging and nesting habitat. For example, based on consultations with WDFW and EFSEC, collector lines originally planned to cross Webber and Sheep Canyons will be relocated south to near or above the head of the canyons.
- The Project will implement spatial and seasonal restrictions on ground-disturbing activities during construction, per WDFW recommendations (Larson et al. 2004; WDFW 2005).

- The Project will avoid the application of pesticide and rodenticides during the construction and operation

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.6.2.6, Post-Adjudication Applicant Commitments.

As identified in **Table 4.6-2**, impact magnitude is determined based on potential impacts on wildlife populations, considering the type of impact and context (adaptability and resiliency) of the existing conditions. The context of impacts is important in order to characterize the ability of a species to accommodate disturbance and how close a population is to its expected resilience and adaptability limits. = Adaptable wildlife species are those that can change their behavior, physiology, or population characteristics (e.g., reproduction rate) in response to a disturbance such that the integrity of the population remains unchanged. For example, certain wildlife populations can accommodate loss of some individuals without a change in overall population status or trajectory (known as compensatory mortality) (Connell et al.1984), or can adjust their physiology or behavior. Adaptable species can accommodate substantial disturbance and sometimes thrive in highly modified environments, whereas species with low adaptability can accommodate little or no disturbance.

Resilience is a concept that is distinct from, yet closely related to, adaptability. Biological populations often have inertia and will continue to function after disturbance up to the point where the disturbance becomes severe and long enough that the population undergoes a fundamental change. Adaptability influences the duration and magnitude of effect required for this to happen, whereas resilience defines the ability of a species or ecosystem to recover from disturbance. Highly resilient wildlife species have the potential to recover quickly from disturbance (e.g., after reclamation is achieved or a mortality source is removed), whereas species with low resilience will recover more slowly or may not recover at all (Weaver et al. 1996).

Table 4.6-2: Criteria for Assessing Magnitude of Impacts on Wildlife and Habitat

Magnitude of Impacts	Description
Negligible	The incremental change is so small that it is neither detectable nor measurable and is not anticipated to influence the viability of a wildlife population or species.
Low	The incremental change may be measurable and could result in a minor influence on the short-term viability of a wildlife population; however, it is expected to be within the natural population variability and resiliency of a species and therefore not expected to impact the viability of the species or population over a longer period of time.
Medium	The incremental change is expected to result in a clearly defined change that could result in changes to the population over shorter and longer periods of time; however, it remains below a level of impact that could exceed the resiliency and adaptability limits of the population.
High	The incremental change is sufficiently large that it approaches or falls within the range of impacts that could exceed the resilience and adaptability of the species or population, potentially impacting the viability of the species or population.

Potential interactions between wildlife and habitat and Project components/activities during construction, operation and maintenance, and decommissioning were identified based on information provided in the ASC for the Project. Interactions can generally be grouped into the following impacts: habitat loss, wildlife mortality, barriers to movement, and habitat fragmentation.

- Direct habitat loss (permanent and temporary) was quantified by habitat type. Methods to quantify direct loss are discussed in Section 4.5, Vegetation. Wildlife habitat loss is also qualitatively discussed using predicted

distribution maps for state priority species, where available (NatureMapping n.d.). The final arrangement of the Project components has not been completed; therefore, habitat loss was conservatively estimated by calculating the loss associated with the Wind Energy Micrositing Corridor, East Solar Field, County Well Solar Field, and Sellards Solar Field. A description of these components can be found in Section 4.5.2.

- Indirect habitat loss may occur due to Project-related changes in habitat quality or use. Indirect habitat loss does not result in the removal of habitat (e.g., footprint loss), but rather in a change in the quality of habitat that may reduce its function for wildlife species (e.g., increased noise disturbance). Quantifying indirect habitat loss can be challenging because of limited research studies on species' response to changes in the landscape (e.g., attraction to or avoidance of an area due to anthropogenic changes and human activity). A simple and conservative approach to quantifying indirect habitat loss is to apply a zone of influence (ZOI) around Project components. The purpose of the ZOI is to quantify habitat surrounding Project components that may be degraded due to changes caused by humans (e.g., soundscape, lightscape). A 0.5-mile (0.8 kilometer) ZOI was applied to operational Project components (e.g. turbine, solar array, Micrositing Corridor) based on a literature review, the details of which are presented in Section 4.6.2.2.
- Sources of wildlife mortality that could result from the Project include collisions, strikes, consumption of toxic materials, and destruction of wildlife that becomes a nuisance (e.g., due to attraction to the Project). This assessment of potential wildlife mortality uses a combination of quantitative and qualitative methods. The Applicant measured the species-specific risk of collisions with the turbines using a bird exposure index. The exposure index was calculated using species' relative use, flight height, and flight time with data for these calculations collected through point count surveys conducted for small and large birds. The exposure indices provided by the Applicant have been used to assess mortality impacts on birds from the turbines. Bat species exposure indices were not calculated for the Project; however, bat mortality data from existing wind power projects were used to estimate potential bat mortality. Other sources of wildlife mortality (e.g., collisions with Project vehicles) are described qualitatively. Direct impacts on special status wildlife species, such as mortality, may be confined to the Lease Boundary and are therefore rated as "local"; however, loss of an individual could result in indirect impacts beyond the local scale through loss of genetic diversity and vulnerability to random events, meaning the population is vulnerable to loss of an individual as this loss increases the risk of the regional population to external pressures.
- Barriers to wildlife movement occur when Project features prevent or change species' ability to move over the landscape. Barriers can include physical constraints (e.g., fencing), as well as features that species may avoid crossing (e.g., roads). Barriers to movement are considered qualitatively in this assessment based on existing literature, modeled and known movement corridors in the Lease Boundary, and the proposed Project layout (e.g., Wind Energy Micrositing Corridor, solar arrays, and roadways).
- Habitat fragmentation occurs when extensive, continuous tracts of habitat are dissected into smaller, more isolated patches (Meffe and Carroll 1994; St-Laurent et al. 2009). Small, dispersed habitat patches may be less effective at providing the requisites of life, compared to larger continuous tracts for many wildlife species. The potential for the Project to fragment wildlife habitat was qualitatively analyzed using data on ecosystem distribution across the Lease Boundary and the proposed Project layout.

4.6.2 Impacts of Proposed Action

As noted in Section 4.6.1, Project-related impacts on wildlife and habitat can be broadly grouped into four general categories: direct habitat loss, indirect habitat loss, mortality, and barriers to movement/ fragmentation. The

subsequent sections will provide a general discussion of the predicted Project-related impacts related to these four categories as they apply to that stage of the Project. Potential impacts on special status species are described separately from general wildlife and habitat impacts in Section 4.6.2.4. The Applicant has proposed a combination of turbine and solar array options. Turbine Option 1 would include installing up to 244 shorter (266-foot tower height, 499-foot blade height) turbines, while Option 2 would include installing up to 150 larger (557-foot tower height, 671-foot blade height) turbines. The Applicant has also proposed three different solar facility locations, though all three may not be constructed. Species-specific discussions are provided for special status species in Section 4.6.2.2 describing the Operation Stage, where an impact on that species is predicted.

4.6.2.1 Impacts during Construction

Impacts related to direct habitat loss, indirect habitat loss, wildlife mortality, and barriers to movement during construction are evaluated in this section.

Turbine Option 1 and Turbine Option 2

The Applicant has proposed two turbine options. Turbine Option 1 is generally expected to have a greater impact on habitat as construction of Turbine Option 1 will result in more direct loss than Turbine Option 2. Potential impacts on wildlife from indirect loss, mortality, and barriers to movement and fragmentation during construction are expected to be similar between the two options as both will require the construction of access roads and power lines, and mobilization of equipment. As such, the subsequent sections focus on the impacts of Turbine Option 1 as impacts from Option 2 are expected to be equal to or less than Option 1.

Habitat Loss from Construction of Turbines

The potential loss of habitat is considered greater for Turbine Option 1 (and was the only disturbance area provided by the Applicant); therefore, only this option is presented in **Table 4.6-4**. The Project would result in the direct loss of habitat through construction of the Wind Energy Micrositing Corridor and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.

Impacts from turbine construction under Turbine Option 1 and Turbine Option 2 are predicted to have a medium impact on habitat loss that is short term for temporary disturbances (e.g., construction laydown areas) and constant for permanent footprint loss (e.g., turbine footprint), unavoidable, and local to within 0.4 miles of construction areas.

Wildlife Mortality from Construction of Turbines

The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) that are unable to move away from machinery during clearing and ground preparation work. Mobilization of equipment and construction-related traffic may result in wildlife-vehicle collisions during Project construction. Impacts from turbine construction under Turbine Option 1 and Turbine Option 2 are predicted to have a low-magnitude impact on wildlife mortality that is short term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Construction of Turbines

Turbines, power lines, roadways, and other linear infrastructure could create barriers to wildlife movement and fragment habitat. Barriers to wildlife movement and habitat fragmentation initiated during construction are expected to continue through operation. Details of potential impacts from barriers to movement and habitat fragment are provided in Section 4.6.2.2.

Turbine construction under Turbine Option 1 and Turbine Option 2 is predicted to have a low-magnitude impact on barriers to movement and habitat fragmentation that is long term (as linear features, such as power lines, would remain through the Operation Stage), probable, and confined to the Lease Boundary.

Solar Arrays

Habitat Loss from Construction of Solar Arrays

The Project would result in the direct loss of habitat through construction of the solar arrays and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction. The solar array would result in direct loss of habitat for larger species, such as pronghorn antelope (*Antilocapra americana*). The solar arrays would be located within fenced areas that are expected to prevent large wildlife species from accessing habitat within the arrays, although the fence lines would surround the array clusters leaving space between the clusters accessible. As the configuration of solar arrays within the identified solar footprints has not been defined, this assessment assumes that habitat within the identified solar footprints would be lost to medium and large wildlife.

Table 4.6-3 presents the predicted habitat loss that would result from the three proposed solar facilities. Of the three, it is expected that the East Solar Field would have the greatest impact on vegetation communities, such as grasslands and shrublands, that provide complex and functional wildlife habitat. The County Well and Sellards Solar Fields would be situated predominantly on agricultural lands and thus would have less impact on such communities.

Construction of the solar arrays would have a medium impact on habitat loss that is short term for temporary disturbances (e.g., construction laydown areas in agricultural fields) and constant for permanent footprint loss, unavoidable, and confined to the Lease Boundary.

Wildlife Mortality from Construction of Solar Arrays

The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) that are unable to move away from machinery during clearing and ground preparation works. Mobilization of equipment and construction-related traffic may result in wildlife-vehicle collisions during Project construction. Solar array construction is predicted to have a low-magnitude impact on wildlife mortality that is short term, feasible, and limited to the solar array fields, access roads, and ancillary facilities.

Table 4.6-3: Predicted Habitat Loss for the Solar Facilities

Habitat Type	East Solar Field		County Well Solar Field		Sellards Solar Field	
	Temporary Disturbance[b] (acres)	Permanent Disturbance[c] (acres)	Temporary Disturbance[b] (acres)	Permanent Disturbance[c] (acres)	Temporary Disturbance[b] (acres)	Permanent Disturbance [c] (acres)
Agriculture Land	85.6	1,075.1	30.0	2,580.4	85.0	1,934.0
Developed/Disturbed	2.7	<0.01	0.2	0	0.6	0
Grassland						
Eastside (Interior) Grassland[a]	7.9	72.5	0	0	0	0
Non-native Grassland	2.9	21.6	0.1	3.0	0.2	0
Planted Grassland	19.8	140.3	1.3	73.7	0.4	1.2
Shrubland						
Dwarf Shrub-steppe[a]	0	0	0	0	0	0
Rabbitbrush Shrubland	43.8	706.1	0	0	0	0
Sagebrush Shrub-steppe[a]	2.5	0.3	0	0	0.3	0
Total	**165.3**	**2,016.0**	**31.6**	**2,657.1**	**86.4**	**1,935.2**

Source: Horse Heaven Wind Farm, LLC 2021a; Tetra Tech 2021.

Notes:

[a] Washington State Department of Fish and Wildlife Priority Habitats

[b] Temporary disturbance is defined as habitat loss that would end when construction is complete and the area would be restored to pre-construction conditions (WDFW 2009). Temporary disturbance from Project construction would occur in equipment laydown areas, construction staging areas, some roads, and areas required for construction that would not be part of the permanent infrastructure. These areas would be revegetated once construction is complete. Calculations of areas were completed independently using spatial data provided by the Applicant.

[c] Permanent disturbance is defined as habitat loss that would persist throughout the life of the Project and would not be restored when construction is complete (WDFW 2009). Permanent disturbance from Project construction (which extends into operation and decommissioning) would occur in the areas of the final tower footings and associated access roads, the substations, fencing around the solar arrays, and all areas occupied by permanent structures. Permanent disturbance also includes areas identified by the Applicant as modified habitat, which includes areas within the fencing around solar arrays. Disturbances include areas under Project footprint features (e.g., turbines) that would be restored during decommissioning. Calculations of areas were completed independently using spatial data provided by the Applicant.

Barriers to Movement and Habitat Fragmentation from Construction of Solar Arrays

Solar arrays, solar array perimeter fencing, power lines, roadways, and other linear infrastructure could create barriers to wildlife movement and fragment habitat. Barriers to wildlife movement and habitat fragmentation initiated during construction are expected to continue through operation. Details of potential impacts from barriers to movement and habitat fragment are provided as part of the discussion of operation impacts in Section 4.6.2.2.

Construction of the solar arrays is predicted to have a low-magnitude impact on barriers to movement and habitat fragmentation that is long term (as linear features, such as power lines, would remain through the Operation Stage), unavoidable, and confined to the Lease Boundary.

Battery Energy Storage Systems

Habitat Loss from Construction of Battery Energy Storage Systems (BESS)

The Project would result in the direct loss of habitat through construction of the BESS. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.

Construction of the BESS is predicted to result in a low-magnitude impact on habitat loss that is short term for temporary disturbances (e.g., construction laydown areas) and long term for permanent footprint loss, unavoidable, and limited to the areas of BESS construction.

Wildlife Mortality from Construction of BESS

The Project may result in mortality of smaller animals (e.g., birds, herptiles, and small mammals) that are unable to move away from machinery during clearing and ground preparation works. Mobilization of equipment and construction-related traffic may result in wildlife-vehicle collisions during Project construction. BESS construction is predicted to have a negligible impact on wildlife mortality that is short term, feasible, and limited in extent.

Barriers to Movement and Habitat Fragmentation from Construction of BESS

Construction of BESS may create barriers to wildlife movement in the adjacent area, resulting in an impact that is predicted to be negligible, long term, unavoidable, and limited to the BESS and surrounding area.

Substations

Habitat Loss from Construction of Substations

The Project would result in the direct loss of habitat through construction of the substations. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.

Similar to the construction of BESS, substation construction would have a low-magnitude impact on habitat loss that is short term for temporary disturbances (e.g., construction laydown areas) and long term for permanent footprint loss, unavoidable, and limited to the construction area.

Wildlife Mortality from Construction of Substations

Similar to wildlife mortality associated with the construction of the BESS, construction of substations may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) that are unable to move away from machinery during clearing, ground preparation works, equipment mobilization, and traffic and is predicted to result in a negligible impact on wildlife mortality that is short term, feasible, and limited in extent.

Barriers to Movement and Habitat Fragmentation from Construction of Substations

Construction of substations may create barriers to wildlife movement in the adjacent area, resulting in an impact that is predicted to be negligible, long term, unavoidable, and limited to the substations and surrounding area.

Comprehensive Project

Habitat Loss from Comprehensive Project

Site clearing and grubbing is one of the most noticeable effects of the Project. The Applicant estimates that 593 acres of terrestrial vegetation would be permanently lost, 2,957 acres temporarily disturbed (e.g., temporary access roads), and 6,570 acres modified (e.g., under solar arrays) during the Construction Stage of the Project to accommodate the installation of Project infrastructure (e.g., turbines, roadways, solar arrays). Temporarily lost habitat would be restored after construction; however, the impact from permanently lost and modified habitat would persist throughout the Operation Stage and a portion of the Decommissioning Stage until habitat functions in restored areas (e.g., sage brush) are re-established. The removal of vegetation reduces the landscape's capability to support wildlife. The effects of site clearing on habitat loss on wildlife species would vary with the time of year and the characteristics of the habitat being cleared. Although habitat is required for wildlife to exist, it is unlikely that there will be a linear relationship between wildlife abundance and habitat availability. The relationship between population density and the availability of habitat is influenced by many factors that may operate independently of habitat, including population densities of the target species and other species in the study area, and the effects of predation pressure, competition, and harvest (Garshelis 2000). The predicted modified, temporary, and permanent losses of habitat are summarized in **Table 4.6-4**, and further details can be found in Section 4.5.

Table 4.6-4: Total Acres of Habitat Types and Subtypes Identified by the Applicant for Temporary and Permanent Disturbance in the Wind Energy Micrositing Corridor, Solar Siting Areas, and Comprehensive Project in Comparison to Total Habitat Available in the Lease Boundary

Habitat Type	Wind Energy Micrositing Corridor (Turbine Option 1)		Solar Siting Areas		Comprehensive Project		Total Habitat Available in the Lease Boundary (acres)
	Temporary Disturbance[(b)] (acres)	Permanent Disturbance[(c)] (acres)	Temporary Disturbance[(b)] (acres)	Permanent Disturbance[(c)] (acres)	Temporary Disturbance[(b)] (acres)	Permanent Disturbance[(c)] (acres)	
Agriculture Land	2,263.9	391.2	200.6	5,589.5	2,323.9	5,802.8	53,450.1
Developed/Disturbed	19.3	1.5	3.5	0.01	19.3	1.6	855.7
Grassland							
Eastside (Interior) Grassland (Eastside Steppe)[(a)]	15.3	5.4	7.9	72.5	16.2	72.5	173.5
Non-native Grassland	136.0	11.5	3.2	24.7	137.3	36.1	1,635.5
Planted Grassland	259.8	23.3	21.5	215.3	263.0	236.0	4,338.3
Unclassified Grassland	0	0	0	0	0.01	0	6,125.2
Shrubland							
Dwarf Shrub-steppe[(a)]	8.9	1.1	0	0	8.9	1.1	23.2
Rabbitbrush Shrubland	145.0	41.6	43.8	706.1	152.3	717.2	3,037.7
Sagebrush Shrub-steppe[(a)]	31.4	1.1	2.8	0.3	31.4	1.4	1,372.0
Unclassified Shrubland	0	0	0	0	<0.01	0	1,436.6
Total	**2,879.6**	**476.6**	**283.3**	**6,608.3**	**2,952.2**	**6,868.7**	**72,427.9**

Sources: Horse Heaven Wind Farm, LLC 2021a; Tetra Tech 2021

Notes: Areas of overlap between temporary and permanent disturbance are only counted toward permanent disturbance. The sum of the acres within disturbance areas of the Wind Energy Micrositing Corridor and Solar Siting Areas may not equal the comprehensive Project due to overlapping areas. Modified habitat was calculated as the area within the solar fence line.

Disturbance areas were not provided by the Applicant for Turbine Option 2

(a) Washington State Department of Fish and Wildlife Priority Habitats

(b) Temporary disturbance is defined as habitat loss that would end when construction is complete and the area would be restored to pre-construction conditions (WDFW 2009). Temporary disturbance from Project construction would occur in equipment laydown areas, construction staging areas, some roads, and areas required for construction that would not be part of the permanent infrastructure. These areas would be revegetated once construction is complete. Calculations of areas were completed independently using spatial files provided by the Applicant (Horse Heaven Wind Farm, LLC 2021a).

(C) Permanent disturbance is defined as habitat loss that would persist throughout the life of the Project and would not be restored when construction is complete (WDFW 2009). Permanent disturbance from Project construction (which extends into operation and decommissioning) would occur in the areas of the final tower footings and associated access roads, the substations, fencing around the solar arrays, and all areas occupied by permanent structures. Permanent disturbance also includes areas identified by the Applicant as modified habitat, which includes areas within the fencing around solar arrays. Disturbances include areas under Project footprint features (e.g., turbines) that would be restored during decommissioning. Calculations of areas were completed independently using spatial files provided by the Applicant (Horse Heaven Wind Farm, LLC 2021a)..

Indirect habitat loss during construction could result from increased noise, light, and human presence on site during construction activities. Wildlife species responses to these changes are variable, with some species acclimatizing to activities and others avoiding areas under construction (Schöll and Nopp-Mayr 2021). Potential disturbances from construction would be restricted to the two-year construction period. During this period, it is expected that the magnitude of the impact could vary depending on the construction activities performed and location of these activities. Details on construction-related noise impacts are provided in the noise impact analysis presented in Section 4.11; however, the Applicant generally predicts sound pressure levels from construction equipment to range from 69 to 84 A-weighted decibels (dBA)[31] at 50 feet and 26 to 41 dBA at 2,000 feet linear distance from the noise source. The Applicant expects that existing ambient noise levels are approximately 30 dBA, although site-specific data have not been presented. The Applicant reports that Project construction activities would predominantly occur during daylight hours, thereby reducing potential nighttime disturbance to wildlife from construction noise and light.

It is expected that most mobile species, such as birds and mammals, would demonstrate some avoidance behavior during the construction period, resulting in a reduction of usable habitat in the Lease Boundary during this period. Based on noise data presented by the Applicant, disturbance could extend at least 2,000 feet (0.4 miles) from the source. As indirect impacts from the Project, including noise, light, and human presence, are predicted to persist into the Operation Stage, this impact is quantified further in Section 4.6.2.2.

The Project would result in the direct loss of habitat through construction of the comprehensive Project. The Project would result in the direct loss of habitat through construction of the Wind Energy Micrositing Corridor, solar arrays, BESS, substations and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.

Construction of the comprehensive Project is predicted to have a medium impact on habitat loss that is short term for temporary disturbances (e.g., construction laydown areas) and constant for permanent footprint loss, unavoidable, and local to within 0.4 miles of construction areas.

Wildlife Mortality from Comprehensive Project

Wildlife mortality can occur from incidents such as wildlife-vehicle collisions and bird strikes with infrastructure. This section is limited to general impacts on wildlife from Project-related mortality. Impacts on special status species are discussed separately in Section 4.6.2.4. These effects can be difficult to predict as data may be hard to obtain and are often incomplete when available (Berger 1995; Lehman et al. 2010). Sources of wildlife mortality during Project construction may include:

- Mortality from clearing and grubbing activities
- Wildlife-vehicle collisions
- Nest/den destruction and failure
- Removal of nuisance wildlife

[31] Sound pressure measurements are presented in dBA, which is weighted to human hearing levels that may not be directly comparable to hearing thresholds for wildlife as the weighting removes low and high frequencies that may be audible to some species but not to humans.

Less mobile animals, such as herptiles, may not be able to move away from machinery used for clearing and grubbing and are susceptible to mortality during these activities. Species may be more susceptible during specific times of the year. For example, amphibians are typically less mobile while in the larval life phase (spring/summer) and while hibernating over winter. The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works, although a quantitative estimate of mortality has not been provided in the ASC.

Wildlife-vehicle collisions may occur when roads bisect habitat, requiring wildlife to cross roads to access adjacent areas. Wildlife-vehicle collisions may occur during Project construction, operation, and decommissioning; however, vehicle traffic is expected to be highest during the Construction Stage. Road mortalities are generally site-specific, and frequencies depend on the species and circumstances such as location, traffic volume, and speed (Jalkotzy et al. 1997; Oxley et al. 1974). For example, amphibians are particularly susceptible to vehicle-wildlife collisions when moving between habitat types, including to and from breeding sites, and when emerging young are dispersing (Fukumoto and Herrero 1998). Collisions are typically more common during dusk and nighttime, when nocturnal species are active and visibility is poor (Gunson et al. 2004).

Birds are often killed on roads (Jalkotzy et al. 1997). While bird species whose habitats are bisected by roads are vulnerable to some extent, specific levels of the effect are not commonly reported. Raptors and owls are susceptible to road kills because of their propensity for hunting small mammals within road allowances and scavenging road-killed animals. Rates of road-based mortality are typically specific to individual projects and can be influenced by the location of roads in unique habitat (e.g., wetlands), traffic volume, work hours, and vehicle speed.

Clearing and site preparation work may result in destruction or disturbance of bird nests or small mammal dens. Adult birds would be able to move away from clearing activities, but their young may not be able to move if clearing is conducted prior to fledging. Birds may abandon nests, and direct mortality may occur if clearing is conducted during the nesting season. Small mammal dens may be destroyed during ground-disturbing works, resulting in mortality of animals in the den. The magnitude of potential mortality is expected to vary depending on the season when work is conducted. For example, clearing work that takes place during the bird breeding season is expected to have greater risk of bird mortality due to the presence of bird nests, eggs, and fledglings than if such work is performed during the winter.

Wildlife may be attracted to construction sites, particularly if waste materials are not well managed. Wildlife attraction to a site can result in increased conflicts with workers and require removal of nuisance individuals. Urbanized species, such as coyote (*Canis latrans*) and raccoon (*Procyon lotor*), are tolerant of human presence and are more likely to access active construction sites to scavenge.

The Project may result in mortality of smaller animals (e.g., birds, herptiles, and small mammals) that are unable to move away from machinery during clearing and ground preparation works. Mobilization of equipment and construction-related traffic may result in wildlife-vehicle collisions during Project construction. Construction of the comprehensive Project is predicted to have a low-magnitude impact on wildlife mortality that is short term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Comprehensive Project

Project components could create barriers to wildlife movement and fragment habitat during construction. Barriers to wildlife movement and habitat fragmentation initiated during construction are expected to continue through

operation. Details of potential impacts from barriers to movement and habitat fragment are provided in Section 4.6.2.2.

Construction of the comprehensive Project is predicted to have a low-magnitude impact on barriers to movement and habitat fragmentation that is long term (as linear features, such as power lines, would remain through the Operation Stage), probable, and confined to the Lease Boundary.

4.6.2.2 Impacts during Operation

Impacts predicted to occur during the Operation Stage of the Project include indirect habitat loss (disturbance), wildlife mortality, barriers to movement, and fragmentation. Additional direct habitat loss is not predicted to occur during the Operation Stage, although permanent loss (identified under Section 4.6.2.1) would continue throughout Project operation. These impacts are not discussed further in this section.

Turbine Option 1 and Turbine Option 2

The impacts on wildlife and wildlife habitat from Turbine Option 1 and Turbine Option 2 are expected to be similar through the Operation Stage. Therefore, the assessment of potential impacts of these options is combined in the sections below.

Habitat Loss from Operation of Turbines

Habitat directly lost during the construction of the Micrositing Corridor would persist through the Operation Stage. The Project may also result in indirect habitat loss through degradation of habitat in the 0.5-mile ZOI created by disturbances (e.g., noise, light) from turbines and associated infrastructure.

Impacts from turbine operation under Turbine Option 1 and Turbine Option 2 are predicted to have a medium-magnitude impact resulting in habitat loss that is constant, unavoidable, and local within 0.5 miles of turbines.

Wildlife Mortality from Operation of Turbines

Collisions of aerial wildlife species (e.g., birds and bats) with turbines are well documented and are expected to be the most notable potential source of mortality associated with the Project. The consequence of wind power projects on regional aerial wildlife populations varies by species group and project location. For example, available data from existing facilities suggest that passerine mortalities associated with turbine collisions may not result in population-level changes (Arnett et al. 2007); however, projects situated near populations of rare species or unique stopover locations could result in more substantial changes (Arnett et al. 2007). In a synthesis of literature, Arnett et al. (2007) reported that bird mortalities are typically evenly distributed between nocturnally migrating passerines and resident birds. This may be attributed to the flight altitude of migrating birds, including those migrating at night, which is often above the rotor-swept zone, thereby reducing risk of collision with turbines (Krijgsveld et al. 2009). Mortalities occur year-round, peaking from April to October (Arnett et al 2007).

Migrating birds are at greatest risk of collision with turbines during dawn and dusk when landing and leaving terrestrial stopover habitats requires flights through the rotor-swept zone. In addition, several studies report that migrating bird mortalities increased with poor weather conditions as these conditions force birds to fly at a lower altitude (e.g., Kerlinger et al. 2010). Further, features of the facilities, such as lighting, may attract migrating birds, though this has not been the case with flashing red lights (FAA 2012). Blinking white or red lighting has been shown to reduce bird collisions compared to steady lighting (Gehring et al. 2009) and may reduce bat collisions compared to turbines with no lighting (Hein and Schirmacher 2016). The Applicant reports that turbine lighting is not predicted to change the mortality rate (increase or decrease) at turbines (Horse Heaven Wind Farm, LLC 2021b).

Migration routes are influenced by several factors, such as the presence of stopover sites (e.g., wetlands) and ridgelines, which vary across guilds (a guild is a group of species, such as waterfowl, that occupy the same ecological role). The Applicant reports that the Lease Boundary does not provide high quality stopover habitat, such as riparian areas or wetlands, commonly used by multiple guilds; although croplands, shrubland, and grassland habitat could be used by migrating birds for foraging. North/south ridgelines that may be used by migrating raptors are predominantly located west of the Project and adjacent to the Yakima River. The Yakima and Columbia Rivers are both over 2 miles from the Project (Appendix K,[32] Horse Heaven Wind Farm, LLC 2022).

Nocturnal migration surveys conducted at the Nine Canyon, Stateline, and Vansycle wind energy facilities reported that most migrating birds (86 percent) flew at altitudes above 262 feet(80 m) (Appendix K,[2] Horse Heaven Wind Farm, LLC 2022). Nocturnal migration surveys were not conducted in the Lease Boundary.

The ASC uses a species-specific exposure index to assess the potential risk of bird mortality from collisions with the proposed turbines. The index was developed from avian use survey data collected in the Lease Boundary. The Applicant concluded that the Project may result in a bird fatality rate similar to that of the nearby Nine Canyon Wind Project (2.6 birds per megawatt [MW] per year), also located in Benton County. The fatality rate at the Nine Canyon Wind Project is slightly higher than the Pacific regional average of 2.4 birds per MW per year (Horse Heaven Wind Farm, LLC 2022).

The Applicant reports that horned lark (*Eremophila alpestris*), gray partridge (*Perdix perdix*), golden-crowned kinglet (*Regulus satrapa*), ring-necked pheasant (*Phasianus colchicus*), and chukar (*Alectoris chukar*) are commonly reported in fatality data and predicts that horned lark is the species most likely to be impacted by the Project, given its abundance within the Lease Boundary and susceptibility to wind power developments. This species is ranked as Apparently Secure (S4) in the State of Washington, though breeding bird survey data suggest an annual decrease (-2.3 percent) in North America, and western states also report population declines (Beason 2020). Further, studies show that for small passerine (e.g., songbird) species, turbine-related mortalities resulting from currently developed wind farms constitute a small percentage of their total population size (<0.045 percent) (Erickson et al. 2014) and do not appear likely to lead to population-level impacts (AWWI 2020).

The potential risk of bird mortality was evaluated for the two turbine options (Option 1 with up to 244 turbines with 266-foot tower height and 499-foot blade height and Option 2, with up to 150 turbines with 557-foot tower height and 671-foot blade height). It is predicted that Turbine Option 1 would result in a higher risk of collisions for small birds and raptors than Option 2 (GAL 2022; **Appendix 4.6-1**). Waterfowl may be more susceptible to collisions with the taller turbines in Option 2; however, raptors are reported to have higher exposure indices for shorter turbines than taller turbines and therefore are considered to be more susceptible to collisions with turbines under Option 1 (see GAL 2022). The Project design has been reconfigured to reduce potential interactions with large waterfowl, such as the American white pelican (*Pelecanus erythrorhynchos)* (see Section 4.6.2.4).

Collision with turbines is considered one of the greatest threats to bats in North America (O'Shea et al. 2016). Bat mortalities are dominated by three species: hoary bat, silver-haired bat (*Lasionycteris noctivagans*), and eastern red bat (*L. borealis*, does not occur in Washington State). Based on data from 52 wind farms in Washington, hoary and silver-haired bats made up 52 and 44 percent of reported bat mortalities, respectively (WEST 2021). Considering that only three species account for most bat mortalities resulting from turbine collisions, population-

[32] Chatfield, A., and J. Thompson (WEST). 2018. Site Characterization Study Report: Badger Canyon Wind Project, Benton County, Washington. Prepared for Badger Canyon MW LLC.

level impacts on these species may become an issue as the number of wind farms increases (Barclay et al. 2007; Hein and Schirmacher 2016; Zimmerling and Francis 2016). Demographic modeling suggests that mortality from wind turbines may substantially reduce population size of the hoary bat and increase its risk of extinction (Frick et al. 2017). Friedenberg and Frick (2021) projected hoary bat (*Lasiurus cinereus*) mortality due to future wind power development and estimated the corresponding impact on hoary bat populations. Projections estimated that wind power development could result in mortality levels of 3 to 46 percent of the hoary bat population by 2050 depending on a range of assumed baseline population size (1 to 10 million bats) and low or high project build out (Friedenberg and Frick 2021). Depending on current bat populations and the extent of wind power build out, hoary bat populations could drop below extinction thresholds over the 20 to 30 years (Friendenberg and Frick 2021). Bat mortalities are most frequently reported in late summer to early fall (90 percent) during fall migration (Arnett et al. 2007).

The bat fatality rate at the nearby Nine Canyon Wind Project was 2.47 bats per MW per year and consisted entirely of hoary and silver-haired bats (Horse Heaven Wind Farm, LLC 2022). Bat mortality rates reported for the Rocky Mountains region range from 1.05 to 11.42 bats/MW/year, averaging 4.90 bats/MW/year. Fatality rates from facilities in the Pacific Northwest, including the Columbia Plateau, range from 0.12 to 4.23 bats/MW/year, averaging 1.19 bats/MW/year. Estimated bat average bat mortality rates have decreased by 5.3 percent to 1.08 bats/MW/year (Jansen et al 2023). If the bat fatality rate at the Project is similar to the rate at the Nine Canyon Wind Project and the average reported rate from the Pacific Northwest, the Project could result in 110 to 3,810 bat fatalities per year, averaging approximately 1,070 to 2,220. These mortality ranges are consistent with estimated Project-related annual bat fatalities analyzed by WDFW (Ritter 2023). The Applicant predicted that bat mortalities during operation of the Project would:

- Be within the range of other facilities in Washington
- Consist primarily of migratory, tree-roosting species (e.g., silver-haired bat, hoary bat)
- Occur mainly in the fall
- The relationship between turbine height and bat collision mortalities is inconclusive, and it is unclear which turbine option would result in greater impacts on bats. Bat fatality is also unlikely to be evenly distributed across the Project. (Horse Heaven Wind Farm, LLC 2022)

Turbine operation under Turbine Option 1 and Turbine Option 2 is predicted to have a medium impact on wildlife mortality that is long term, probable, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Operation of Turbines

The operation of turbines, power lines, roadways, and other linear infrastructure could result in barriers to wildlife movement and fragment habitat. Barriers and fragmentation created during construction would predominantly remain through operation. The Applicant notes that the Project has been designed to avoid impacts on movement corridors by siting turbines and associated roads such that approximately 11 turbines are located in the high linkage area running north/south (Horse Heaven Wind Farm, LLC 2022). Turbines have not been sited in the linkage area that runs east/west along the ridgeline. Turbine operation under Option 1 and Option 2 is predicted to have a medium impact on barriers to movement and habitat fragmentation that is long term, probable, and confined to the Lease Boundary.

Solar Arrays

Habitat Loss from Operation of Solar Arrays

Habitat directly lost during construction of the solar arrays would predominantly persist through the Operation Stage into decommissioning, though areas under the solar arrays (modified habitat) may continue to provide habitat with reduced or altered function. Habitat under solar arrays would be revegetated with a grass mix, which is expected to provide foraging and shelter habitat for some species (e.g., small mammals); however, this would not provide the same ecological role or function as mature native sagebrush habitat. Operation of the solar arrays may also result in indirect habitat loss through degradation of habitat in the 0.5-mile ZOI created by disturbances from solar arrays and associated infrastructure.

Solar array operation is predicted to have a medium impact on habitat loss that is constant, unavoidable, and confined to the Lease Boundary.

Wildlife Mortality from Operation of Solar Arrays

There is limited published literature on fatality rates associated with solar facilities. It is postulated that water-associated birds (e.g., herons) and water obligates are more likely to interact with solar facilities because these species may perceive the facilities as waterbodies when they are in flight, a phenomenon known as the “lake effect.” In a synthesis of monitoring studies from 10 facilities, Kosciuch et al. (2020) reported taxonomic variability in the bird fatalities observed at different solar sites; however, mourning doves (*Zenaida macroura*), horned larks, and western meadowlarks (*Sturnella neglecta*) were reported at all sites. Mortalities of water-associated birds and water obligates occurred at most solar sites in the Sonoran and Mojave Deserts Bird Conservation Region but were less common in the Great Basin and Coastal California Bird Conservation Regions. Further, most of these fatalities involved ground-dwelling species (three out of four most common species detected) and were detected during the fall. Kosciuch et al. (2020) estimated an annual fatality rate of 2.49 fatalities per MW per year at facilities in the southwestern United States.

It has been demonstrated that bats may not be able to detect the difference between water and other smooth surfaces in laboratory settings (Greif and Siemers 2010; Russo et al. 2012), which could increase their risk of collision with solar arrays. However, there is limited information on the frequency of bat mortalities at these locations, and Russo et al. (2012) noted that bats typically moved to alternative locations after failed drinking attempts.

Mortality of other wildlife groups, such as amphibians, herptiles, and mammals, due to solar arrays is poorly understood. Changes in ground temperature and water conditions could impact wildlife survivorship within array footprints; however, the extent of the effect is not well understood.

Solar array operation is predicted to have a low-magnitude impact on wildlife mortality that is long term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Operation of Solar Arrays

Fencing for the solar arrays would be limited to the panel clusters, rather than encompassing the entire facility footprint. Fencing is expected to create barriers for larger mammals, such as pronghorn antelope, from accessing habitat around the arrays. Herptiles, small mammals, and small birds are expected to be able to continue to access vegetation around the arrays through the fencing. The east solar field would be situated on a movement corridor and may impact wildlife movement. The potential loss or alteration of the habitat around the arrays has already been considered in the discussion of direct and indirect loss, above.

Solar array operation is predicted to have a medium-magnitude impact on barriers to movement and habitat fragmentation that is long term, probable, and confined to the Lease Boundary.

Battery Energy Storage Systems

Habitat Loss from Operation of BESS

Habitat directly lost during construction of the BESS would predominantly persist through the Operation Stage. Operation of the BESS may also result in indirect habitat loss through degradation of habitat in the 0.5-mile ZOI created by disturbances from these features.

BESS operation is predicted to have a negligible impact on habitat loss that is long term, unavoidable, and limited to the BESS and surrounding area.

Wildlife Mortality from Operation of BESS

Wildlife mortality may occur due to collisions with infrastructure, including BESS. BESS operation is predicted to have a negligible impact on wildlife mortality that is long term, unlikely to occur, and limited to the BESS areas.

Barriers to Movement and Habitat Fragmentation from Operation of BESS

BESS may create barriers to wildlife movement by altering wildlife movement through and around the BESS and adjacent areas. BESS operation is predicted to have a low impact on barriers to movement and habitat fragmentation that is long term, feasible, and limited to the BESS areas.

Substations

Habitat Loss from Operation of Substations

Habitat directly lost during construction of the substations would predominantly persist through the Operation Stage. Operation of the substations may also result in indirect habitat loss through degradation of habitat in the 0.5-mile ZOI created by disturbances from these features.

Substation operation is predicted to have a negligible impact on habitat loss that is long term, unavoidable, and limited to the substation and surrounding area.

Wildlife Mortality from Operation of Substations

Wildlife mortality may occur due to collisions with infrastructure, including substations. Substation operation is predicted to have a negligible impact on wildlife mortality that is long term, unlikely to occur, and limited to the substation areas.

Barriers to Movement and Habitat Fragmentation from Operation of Substations

Substations may create barriers to wildlife movement by altering wildlife movement through and around the substations and adjacent area. Substation operation is predicted to have a low impact on barriers to movement and habitat fragmentation that is long term, feasible, and limited to the substation areas.

Comprehensive Project

Habitat Loss from Operation of Comprehensive Project

As indicated in the 2022 ASC, in addition to direct impacts of wind turbines, solar arrays, and associated infrastructure on wildlife, indirect impacts on wildlife could occur (Horse Heaven Wind Farm, LLC 2022), such as:

- **Displacement:** Wind turbines could cause displacement of wildlife from proximal habitats due to sensory disturbance, such as noise and visual distraction, which can effectively cause habitat loss (Drewitt and

Langston 2006). Multiple studies indicate that bird and mammal abundance decreases with increasing proximity to infrastructure such as wind turbines (Benítez-López et al. 2010; Drewitt and Langston 2006; Smith et al. 2020).

- **Change in Behavior:** Species may change their behavior to avoid specific components of the Project or the Lease Boundary. For example, birds may alter their flight paths to avoid contact with wind turbines. Altered flight paths could require additional energy expenditure, which in turn impacts individual fitness (Drewitt and Langston 2006).

Displacement as an indirect impact can equate to a type of habitat degradation or loss (Drewitt and Langston 2006). While the habitat is still present, it is no longer functional or providing the same resources to wildlife. Indirect impacts on wildlife due to avoidance and behavioral changes are the greatest habitat-related impacts from wind power facilities because the impacts increase wildlife habitat fragmentation (Arnett et al. 2007). It is acknowledged that the response and the magnitude of indirect impacts from wind turbines vary among species; however, multiple studies have found that infrastructure, including wind turbines, causes indirect impacts on wildlife and wildlife habitat that are greater than the sum of the direct habitat loss impacts (Benítez-López et al. 2010). Changes in ambient conditions such as noise, light, and visual scape due to Project operation may result in a change in wildlife behavior; however, the extent and duration of these changes are difficult to predict and require some inferences from other industries.

Noises above certain levels tend to alter wildlife behavior, potentially increasing their metabolic rates and stress levels (Manci et al. 1988) and contribute to increased energy expenditures due to increased movement around infrastructure (Bradshaw et al. 1997). Depending on the timing and level of stress, potential results of stresses include interference with communication and reduced reproductive success (Habib et al. 2007). For example, noise may cause changes in the frequency and duration of amphibian calling effort and may result in a reduction in the pairing success of birds due to interference with communication (Lengagne 2008; Habib et al. 2007). A synthesis of literature on the effects of noise on wildlife suggests that terrestrial wildlife generally respond to noise levels around 40 dBA, with most showing impacts around 50 dBA (Shannon et al. 2016).

There is a lack of literature available examining the impacts of light on wildlife. It is often difficult to separate the combined influence of industrial noise, artificial light, and edge effect on wildlife species. Artificial light has the potential to affect the timing of reproductive behavior of wildlife species (Kempenaers et al. 2010). The Project is anticipated to require security lighting at the substations, O&M facilities, and BESS. In addition, FAA requirements dictate that aviation lighting would be required on the turbine nacelles, along with mid-tower lighting for turbines with blade tip heights above 599 feet. Lighting would also be required on the four permanent met towers. FAA lighting would not be steady but rather would be blinking. In addition, the use of Aircraft Detection Lighting Systems (ADLS) would reduce the duration that blinking lights are active. Nighttime light trespass modeling has not been conducted. The potential impacts of FAA lighting are expected to vary across species. Blinking lights may reduce bird and bat collisions, suggesting that these animals may be modifying their flights to avoid vertical structures.

Several studies have estimated distances from wind turbines where wildlife may be disturbed. For example, Leddy et al. (1999) reported decreased breeding bird densities within 262 feet (80 meters) of turbines, while Johnson et al. (2000) and Erickson et al. (2004) reported lower densities of grassland birds within 328 feet (100 meters) of turbines. Shaffer and Buhl (2016) reported that species are often displaced within 328 feet (100 meters) and can extend beyond 984 feet (300 meters). Similarly, breeding passerine densities are lower on Conservation Reserve Program (CRP) land with wind turbines compared to CRP land without turbines in

grassland ecosystems (Leddy 1996). Densities of songbirds increase with increasing distances from wind turbines, and avoidance was attributed to disturbance from noise and wind turbine maintenance (Leddy 1996).

Studies conducted at the Buffalo Ridge Wind Farm in southwestern Minnesota reported that no raptor nests were recorded within the 7,907 acres (32 square kilometers [km^2]) occupied by that project, though raptor nest density away from the project was measured at 5.94 nests per 24,710 acres (100 km^2) (Usgaard et al. 1997). Other studies suggest that some raptor species may nest 0.5 miles (800 meters) from wind power facilities (Arnett et al. 2007), and Garvin et al. (2011) reported a 47 percent reduction in raptor abundance in proximity to wind turbines, with most individuals remaining at a distance at least 328 feet (100 meters) from turbines. Disturbance was estimated to be larger, approximately 1 mile (1,600 meters), for greater prairie-chickens (*Tympanuchus cupido*) (Robel 2002). Wind farms may also be avoided by waterfowl and water-associated birds, which have been reported to be deterred at distances within 328 feet (100 meters) to 1,970 feet (600 meters) from turbines (Larsen and Madsen 2000; Rees 2012).

Bat activity may also vary near turbines, with some studies suggesting that bat activity may be reduced within approximately 0.6 miles (1,000 meters) of wind power projects (Barré et al. 2017), and others suggesting that bats may be attracted to wind farms (Richardson et al. 2021). Łopucki et al. (2017) reported that herbivorous mammals seemed to avoid areas within 0.44 miles (700 meters) of wind farms. A study of female pronghorns before and after wind turbine development found that pronghorns avoided wind turbines that were constructed within their winter range. Areas within the home range that were previously used prior to wind turbine construction were subsequently avoided during the winters following construction (Smith et al. 2020). As reported by the Applicant, disturbance and displacement may not occur immediately after construction or onset of operation but could occur over time (Horse Heaven Wind Farm, LLC 2022).

Similarly, there are limited data describing changes in wildlife behavior and densities in response to solar array operation (Chock et al. 2020; Lovich and Ennen 2011). Lovich and Ennen (2011) suggest that operation of solar facilities could result in a variety of disturbance impacts on wildlife such as noise impacts, electromagnetic field impacts, microclimate impacts, pollution, water consumption, fire impacts, and light impacts. Chock et al. (2020) noted that habitat changes from solar arrays may influence wildlife movement patterns, reproductive success, and physiological stress. Habitat modifications and isolation (e.g., fencing) associated with solar arrays may alter predator and antipredator behavior (e.g., predator avoidance). For example, insects and other species that are attracted to light could be drawn to solar arrays, resulting in increased density and activity of insectivorous species (Chock et al. 2020). Conversely, fencing and shelter produced by solar arrays may attract smaller prey species because these features of the arrays may reduce predation success.

Species that can acclimatize to modified environments may not display avoidance behavior around wind power facilities (Johnson et al. 2000), though they may avoid specific components of the facility, such as roads. As noted in the 2022 ASC, some displacement of raptors and functional loss of foraging habitat are expected to result from the Project (Horse Heaven Wind Farm, LLC 2022). To quantify the indirect impacts of the Project, a ZOI was developed for the Project. A distance of 0.5 miles (800 meters) from Project infrastructure was selected as the ZOI. This distance was selected based on:

- Literature suggesting that mean abundance of birds declines within 0.5 miles (800 meters) of infrastructure (Benítez-López et al. 2010)
- Literature published on the displacement distances from wind farms, discussed above

- Application of conservative assumptions to account for uncertainty in the literature

With the application of the 0.5-mile ZOI, the Project is predicted to result in the disturbance (indirect loss) of an additional 53,127 acres of habitat, the majority (74 percent) is agricultural land. A summary of estimated indirect loss, calculated by habitat type, is provided in **Table 4.6-5** and shown in **Figure 4.6-1**. The calculation of indirect loss was estimated using Turbine Option 1 because this option is expected to involve a greater spatial distribution of turbines than Option 2.

Table 4.6-5: Summary of Estimated Indirect Habitat Loss in the Lease Boundary

Habitat Type	Acres	Percentage of Total Indirect Loss
Agriculture Land	39,169	74%
Developed/Disturbed	699	1.3%
Eastside (Interior) Grassland[(a)]	85	<1%
Grassland	4,576	8.6%
Non-native Grassland	1,462	2.8%
Planted Grassland	3,246	6.1%
Dwarf Shrub-steppe[(a)]	13	<1%
Rabbitbrush Shrubland	1,678	3.2%
Sagebrush Shrub-steppe[(a)]	1,019	1.9%
Shrubland	1,181	2.2%
Total	**53,128**	

Notes: Calculations of areas were completed independently using spatial files provided by the Applicant.
(a) Washington State Department of Fish and Wildlife Priority Habitats

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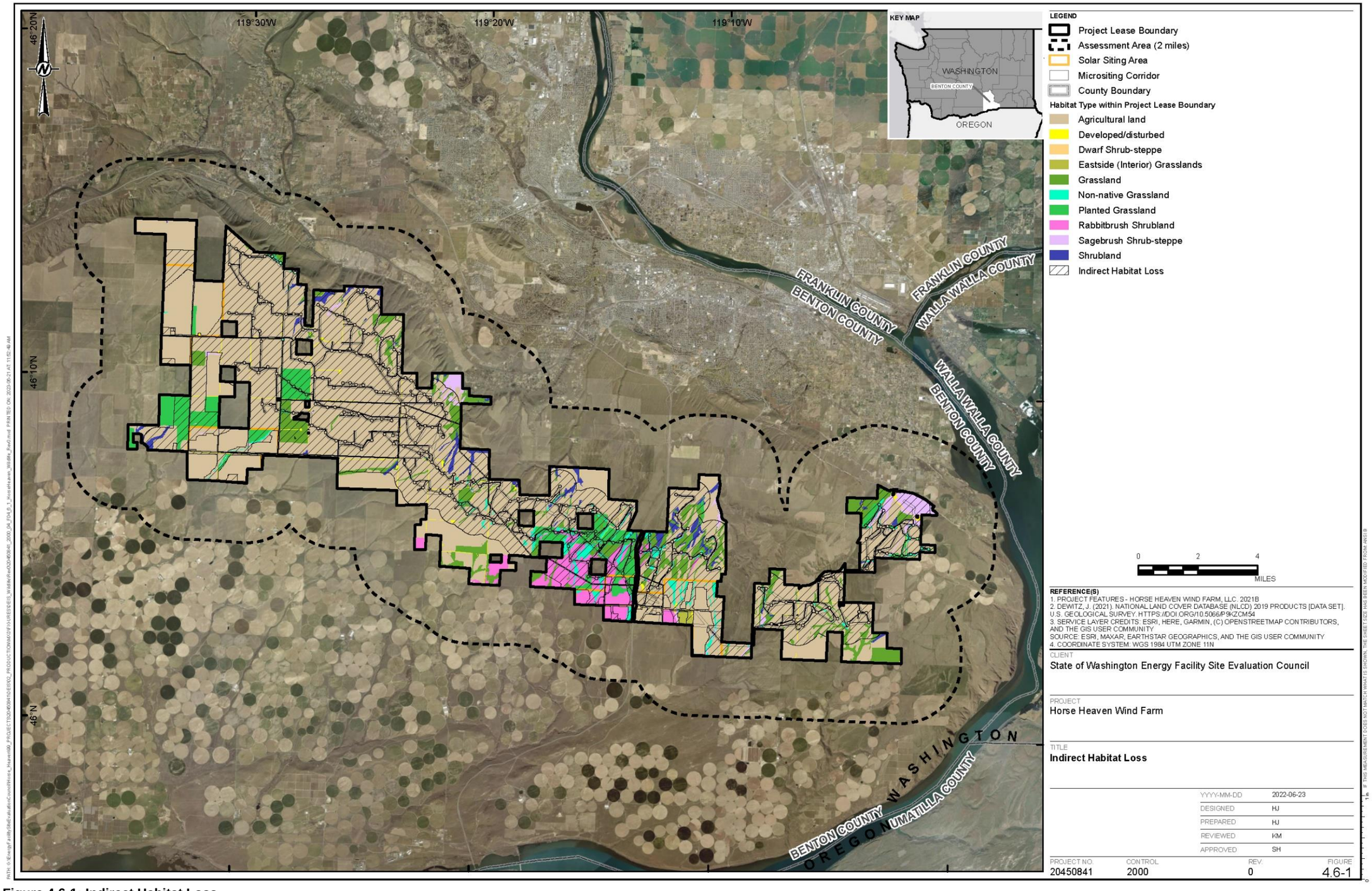

Figure 4.6-1: Indirect Habitat Loss

Operation of the comprehensive Project would result in the direct loss of habitat. Direct loss of habitat associated with the Wind Energy Micrositing Corridor, solar arrays, BESS, substations, and associated transportation routes initiated during construction would continue throughout Project operation. The Project may result in indirect habitat loss through degradation of habitat in the ZOI created by disturbances (e.g., noise, light) from Project infrastructure.

Operation of the comprehensive Project is predicted to have a medium impact on habitat loss that is constant, unavoidable, and local to within 0.5 miles of Project components.

Wildlife Mortality from Operation of Comprehensive Project

Operation of the Project presents several sources of potential wildlife mortality, such as collisions with infrastructure, change in prey structure, and ingestion of toxic materials. Potential impacts on wildlife from collision with turbines and solar arrays are analyzed in the sections below.

In addition to collisions with turbines and solar arrays, fatalities could also occur from strikes with power lines, windows, weather towers, and vehicles. Collision frequency with these infrastructure components is challenging to predict because site-specific factors, such as siting of infrastructure and local species composition, influence the frequency of mortality. It is estimated that between 12 million and 64 million birds are killed annually in the United States due to interactions with power lines (Loss et al. 2014). D'Amico et al. (2019) suggest that large, longer-living species with a low reproductive rate (e.g., raptors) tend to be at greater risk of collision with power lines. Further, behavioral traits, such as flight height within the range of power lines, increase the risk of collisions. It is expected that some mortality would occur due to collisions with overhead power lines, weather towers, and other infrastructure. This effect is expected to be more pronounced for larger birds, such as raptors.

Wildlife may also be killed on access roads developed for the Project. Access roads, arterial roads, and highways can be a substantial source of mortality, particularly for smaller wildlife such as herptiles and rodents. Wildlife can be attracted to roads as the granular base provides a unique habitat (e.g., road edge used for burrowing, and road surface used for thermoregulation). However, the Applicant does not predict that Project operations would require substantial road traffic. Therefore, road-based mortality is not predicted to be a substantial source of wildlife mortality, given the Applicant commitments discussed in Section 4.6.2.5.

The Applicant does not predict mortalities from interactions with hazardous or toxic materials because these materials would be stored and handled according to applicable environmental laws (Horse Heaven Wind Farm, LLC 2022). Therefore, interactions with these substances would be limited to unexpected events such as accidents and malfunctions.

Changes and alterations due to human activity can influence predator-prey structure, as well as inter-species composition. Increased activity and infrastructure can deter larger predators from the landscape by creating a prey "refuge" (Muhly et al. 2011). Anthropogenic changes can also result in increased abundance of human-tolerant species, such as corvids, which are able to out-compete or prey on wildlife that existed prior to development. These changes may lead to lower survivorship of predators and their offspring, resulting in increased mortality.

The Project may result in mortality of aerial species (birds and bats) through collisions with turbines, power lines, solar arrays, windows, and weather towers. Other sources of mortality on wildlife, including non-aerial species, include vehicle collisions and changes in food availability. Operation of the comprehensive Project is predicted to have a medium impact on wildlife mortality that is long term, probable, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Operation of Comprehensive Project

Barriers to Movement

Barriers to movement have been widely discussed in literature (Bromley 1985; Berger 1995; Jalkotzy et al. 1997). Barriers to movement occur when infrastructure bisects a movement corridor or habitat, reducing or prohibiting wildlife movement between habitat patches. These barriers can be physical constraints, such as fencing, but also include perceived barriers, such as forest openings, roads, and power lines. While linked to habitat fragmentation, barriers to movement can occur in already fractured landscapes where wildlife persists. Infrastructure associated with wind turbines could create barriers to wildlife movement (Román et al. 2020).

The Washington Wildlife Habitat Connectivity Working Group has modeled movement corridor linkages to facilitate landscape level habitat management. These linkages were developed based on a composite of focal species habitat mapping (WHCWG 2012). Generally, the Project would be situated in areas classified with low and medium linkage ratings; polygons classified with high movement corridor class rating occur north and south of the Wind Energy Micrositing Corridor and within the Lease Boundary (Figure 3.6-2). Further, much of the Horse Heaven Hills ridgeline is considered a “pinch-point” for wildlife movement (rated as very high) (WHCWG 2013). A pinch-point is defined as a “portion of the landscape where movement is funneled through a narrow area. Pinch points can make linkages vulnerable to further habitat loss because the loss of a small area can sever the linkage entirely” (WHCWG 2012).

The Applicant reports that Project turbines would be located away from the escarpment that runs east-west along the northern perimeter of the Lease Boundary. The Project bisects some areas rated as high linkage along the Horse Heaven Hills ridgeline and one to the south, adjacent to Highway 395. The Applicant notes that the Project has been designed to avoid impacts to movement corridors by siting turbines and associated roads such that approximately 11 turbines may be located in a high linkage area (Horse Heaven Wind Farm, LLC 2022). As discussed above, wildlife may avoid infrastructure that bisects these linkages, which would restrict their movement. It is noted that these linkages were created based on modeled habitat, and empirical data assessing wildlife usage were not used to verify movement corridors. Based on the overlap with modeled movement corridors, the Project may impact wildlife movement over the local landscape, particularly the north-south corridor west of Highway 395, which would be bisected by the Project.

The Applicant notes that the Project would be located along the Pacific Flyway, and migrating birds, including waterfowl, shorebirds, and waterbirds, may move over the Lease Boundary to access stopover sites in adjacent areas (e.g., Columbia River). Based on avian field data collected by the Applicant, the Lease Boundary is not expected to provide unique stopover habitat, such as wetlands or riparian areas, although migrating birds could forage in croplands, shrublands, and grassland during migrations. The Lease Boundary is it located along concentrated migration routes (Horse Heaven Wind Farm, LLC 2022).

New access roads may result in barriers to movement for smaller wildlife species, such as mice, voles, and herptiles (e.g., MacPherson et al. 2011; Paterson et al. 2019; Shepard et al. 2008), though the magnitude of the resulting impact varies based on road type and habitat (Kroeger et al. 2021; Forman et al. 2002). The Applicant proposes to construct up to 105 miles of new access roads. Roads are expected to be 16 feet wide. The proposed access roads are not expected to be heavily used, which is predicted to reduce the potential for creating barriers to movement. However, new access roads, particularly through native habitats, such as grasslands and shrublands, may reduce movement of small animals over these landscapes.

Power line corridors are another linear feature of the Project that could create barriers to movement. The behavioral reaction of wildlife to power lines may not be the same as the reaction to roads because vegetation and natural ground conditions may be maintained under the power lines. As noted by Richardson et al. (2017), the available literature on the impacts of power lines in non-forested ecosystems is limited. As discussed above, infrastructure can change the landscape for wildlife, possibly changing predator-prey relationships. Transmission towers and distribution poles provide new perching structures for birds (Morelli et al. 2014), a feature that can be limiting in shrub and grassland ecosystems. The availability of these new perching features like power lines and utility poles is postulated to increase predation pressure from raptors and corvids (Richardson et al. 2017), resulting in avoidance of power line corridors by some prey species such as herptiles, small mammals, and birds (Pruett et al. 2009). Behavioral change of large mammals in response to power line corridors can vary, with some species attracted to linear features as a source of forage or movement, while others avoid these features (e.g. Bartzke et al. 2014, Bartzke et al. 2015). Leu et al. (2011) did not observe avoidance of power line corridors by pronghorn antelope.

Habitat Fragmentation

Anthropogenic changes to the landscape, such as removal of native vegetation, creation of linear features, and development of infrastructure, can fragment ecosystems, resulting in a patchwork of smaller native vegetation communities dispersed among altered habitats. Habitat fragmentation is linked to barriers to movement. The Project would generally be situated on a landscape that has been fragmented by agriculture, urban development, and roads. The Project is predicted to result in new fragmentation where Project components bisect native shrub-steppe habitat, predominantly along the northern boundary of the Lease Boundary. Further fragmentation may occur where roads and other ground disturbance is proposed over canyons and draws.

The operation of turbines, solar arrays, power lines, roadways, and other infrastructure could result in barriers to wildlife movement and fragmented habitat. Barriers and fragmentation created during construction would predominantly remain through operation. Operation of the comprehensive Project operation is predicted to have a medium impact on barriers to wildlife movement and habitat fragmentation that is long term, probable, and confined to the Lease Boundary.

4.6.2.3 Impacts during Decommissioning

Impacts associated with decommissioning would be similar to impacts identified during Project construction (Section 4.6.2.1). General potential impacts from decommissioning are described below and characterized by Project components in subsequent sections.

Turbine Option 1 and Turbine Option 2

Habitat Loss from Decommissioning of Turbines

The Project would result in temporary loss of habitat during decommissioning of Turbine Option 1 and Turbine Option 2. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation. Decommissioning under Turbine Option 1 and Turbine Option 2 is predicted to have a negligible impact on habitat loss that is short term, unavoidable, and local to within 0.4 miles of decommissioning areas.

Wildlife Mortality from Decommissioning of Turbines

Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning. Turbine decommissioning under Turbine Option 1 and Turbine Option 2 is

predicted to have a negligible impact on wildlife mortality that is short term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Decommissioning of Turbines

Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas. Decommissioning of turbines is predicted to have a negligible impact on barriers to wildlife movement and habitat fragmentation that is short term, feasible, and confined to the Lease Boundary.

Solar Arrays

Habitat Loss from Decommissioning of Solar Arrays

The Project would result in temporary loss of habitat during decommissioning of solar arrays. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation. Solar array decommissioning is predicted have a negligible impact related to habitat loss that is short term, unavoidable, and confined to the solar array fields, access roads, and ancillary facilities.

Wildlife Mortality from Decommissioning of Solar Arrays

Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning. Decommissioning of the solar arrays is predicted to have a negligible impact on wildlife mortality that is short term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Decommissioning of Solar Arrays

Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas. Decommissioning of the solar arrays is predicted to have a negligible impact resulting in barriers to wildlife movement and habitat fragmentation that is short term, feasible, and confined to the Lease Boundary.

Battery Energy Storage Systems

Habitat Loss from Decommissioning of BESS

The Project would result in temporary loss of habitat during decommissioning of BESS. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation. Decommissioning of the BESS is predicted to have a negligible impact resulting in habitat loss that is short term, unavoidable, and limited to the BESS areas.

Wildlife Mortality from Decommissioning of BESS

Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning. Decommissioning of the BESS is predicted to have a negligible impact on wildlife mortality that is short term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Decommissioning of BESS

Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas. Decommissioning of the BESS is predicted to have a

negligible impact resulting in barriers to wildlife to movement and habitat fragmentation that is short term, feasible, and limited to the BESS areas.

Substations

Habitat Loss from Decommissioning of Substations

The Project would result in temporary loss of habitat during decommissioning of substations. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation. Decommissioning of the substations is predicted to have a negligible impact resulting in habitat loss that is short term, unavoidable, and limited to the substation areas.

Wildlife Mortality from Decommissioning of Substations

Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning. Decommissioning of the substations is predicted to have a negligible impact on wildlife mortality that is short term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Decommissioning of Substations

Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas. Decommissioning of the substations is predicted to have a negligible impact related to barriers to wildlife movement and habitat fragmentation that is short term, feasible, and limited to the substation areas.

Comprehensive Project

Habitat Loss from Decommissioning of Comprehensive Project

Some temporary disturbance of habitat is expected to be required during Project decommissioning to facilitate removal of the infrastructure. These losses are described in Section 4.5.2.3. No new permanent habitat loss is expected during the Decommissioning Stage. The duration of temporary habitat loss would be limited to the timeframe during which the decommissioning and restoration activities would occur.

Revegetation of areas associated with temporary, modified, and permanent disturbance would be conducted during the Decommissioning Stage. Revegetation of areas of shrub-steppe habitat lost during construction and operation would have a positive effect on wildlife from operational conditions, and revegetation could have a positive impact on wildlife by re-establishing native habitat types and habitat connectivity in areas previously dominated by agriculture.

Noise and disturbance associated with decommissioning activities are also expected to be similar to impacts described for the Construction Stage. Wildlife are expected to be temporarily displaced due to increased visual and noise disturbances during infrastructure removal. These impacts are predicted to be short term and would end once decommissioning activities are complete.

Removal of infrastructure could change available habitat for species that had adapted to site conditions associated with Project features. For example, removal of transmission poles may result in a reduction of perching and nesting habitat for guilds, such as raptors, that have adapted to using these features. Similarly, if smaller mammals have adapted to using solar arrays as shelter, removing these features may reduce shelter sites for smaller animals.

The Project would result in temporary loss of habitat during decommissioning of the comprehensive Project. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation. Decommissioning of the comprehensive Project is predicted to have a negligible impact resulting in habitat loss that is short term, unavoidable, and local to within 0.4 miles of decommissioning areas.

Wildlife Mortality from Decommissioning of Comprehensive Project

Sources of wildlife injuries and mortality during decommissioning are expected to be similar to Construction-Stage activities, including collisions with equipment, removal of nuisance wildlife, destruction or failure of nests, destruction of dens and burrows, and habitat loss. The risk of mortality would be limited to the duration of decommissioning.

Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning. Decommissioning of the comprehensive Project is predicted to have a negligible impact on wildlife mortality that is short term, feasible, and confined to the Lease Boundary.

Barriers to Movement and Habitat Fragmentation from Decommissioning of Comprehensive Project

Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas. Decommissioning of the comprehensive Project is predicted to have a negligible impact resulting in barriers to wildlife movement and habitat fragmentation that is short term, feasible, and confined to the Lease Boundary.

4.6.2.4 Special Status Species

This section describes the predicted impacts on special status species from the construction, operation, and decommissioning of the Micrositing Corridor, solar arrays, BESS, substations, and other supporting infrastructure. The predicted impacts from the comprehensive Project from the three stages are described collectively under the species-specific heading. The Lease Boundary may support 20 special status species. Special status species may be less resilient to habitat loss, habitat change, or changes in population due to the existing pressures on the populations in the baseline case. The following sections describe the potential Project-related impacts on special status wildlife species that may have deviated from the descriptions of impacts provided in the preceding sections. Individual impact ratings for special status species have been provided in the impact summary tables, **Table 4.6-11a** through **Table 4.6-11c**. Pronghorn antelope is also included in this section. While not considered a special status species, pronghorn antelopes are understood to be of special importance to the Yakama Nation and are the subject of a regional re-introduction program.

Sagebrush Lizard and Striped Whipsnake

As noted by the Applicant, while sagebrush lizards (*Scleoporus graciuosus*) have not been recorded within the Lease Boundary, suitable habitat for the species is available in the area (Horse Heaven Wind Farm, LLC 2022). Striped whipsnake (*Coluber taeniatus*) has also not been documented in the Lease Boundary, and the Applicant reports that suitable hibernacula are not available in this location; however, Gap Analysis Project (GAP) data classify portions of the Lease Boundary as year-round habitat. Shrub-steppe, rabbitbrush, and grassland may be impacted by the Project, resulting in a loss of potentially suitable sagebrush lizard and striped whipsnake habitat (**Table 4.6-6**). Agricultural areas that would be modified under the solar facility could be used as thermoregulatory or shelter sites by reptiles; however, the response of reptiles to these facilities is unknown.

Table 4.6-6: Potential Loss of Sagebrush Lizard and Striped Whipsnake Habitat

Habitat Type	Temporary Disturbance (acres)	Permanent Disturbance (acres)	Modified Habitat (acres)
Eastside (Interior) Grassland	17	5	72.5
Non-native Grassland	137	13	24.7
Planted Grassland	263	33	215.3
Dwarf Shrub-steppe	9	1	0
Rabbitbrush Shrubland	154	49	706.1
Sagebrush Shrub-steppe	31.1	1	0.3

Source: Horse Heaven Wind Farm, LLC 2021a; Tetra Tech 2021
Notes: Calculations of areas were completed independently using spatial files provided by the Applicant.

There is a lack of data on behavioral changes in reptiles due to wind farms. Potential effects on sagebrush lizard and striped whipsnake are extrapolated from studies on other reptiles, where information exists. In a study on changes in side-blotched lizard (*Uta stansburiana*) populations in response to wind farms in California, Keehn et al. (2019) concluded that wind farms did not notably influence species demography or behavior. However, this study did find that the species avoided areas of dense roads. Similarly, sagebrush lizard and striped whipsnake may not avoid habitat around turbines but could avoid new access roads developed for the Project. Reptiles could be attracted to solar arrays, as these areas could provide shelter from predation by raptors. Further, it is possible that solar arrays may provide areas of thermoregulation.

Reptiles are vulnerable to road-based mortality (Row et al. 2007). Increased road networks in the Lease Boundary can increase the risk of mortality for sagebrush lizard and striped whipsnake; however, operational traffic levels are expected to be minimal. Therefore, a substantially increased risk to sagebrush lizard and striped whipsnake is not expected.

Impacts from Project construction (Turbine Options 1 and 2, solar arrays, BESS, substations, and the comprehensive Project) are predicted to have a low impact on sagebrush lizard and striped whipsnake that is constant, feasible, and confined within 0.5 miles of infrastructure. Impacts initiated in construction would predominantly persist through operation and are predicted to be low magnitude, constant, and may feasibly occur confined within 0.5 miles of infrastructure. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

American White Pelican

The Applicant reports that the Lease Boundary does not provide suitable foraging or resting habitat for the American white pelican, though a resident population occurs within 4 miles of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). Suitable habitat is mapped to the north and east of the Lease Boundary, along the Columbia River (Horse Heaven Wind Farm, LLC 2021c). The Project is not expected to result in direct or indirect loss of American white pelican habitat.

American white pelicans were observed during field surveys flying over the Lease Boundary near the Columbia River. The Applicant reported that American white pelicans are predicted to be the fifth most likely bird to collide with Project infrastructure. However, prior to the submittal of the ASC in 2021, the Applicant removed the most eastern portion of the proposed Project, which is expected to reduce the potential for American white pelicans to strike turbines. Further, the Applicant reports that no mortalities of this species have been recorded at the nearby

Nine Canyon Wind Project. Exposure indices for American white pelican are similar for all turbine technologies, ranging from 0.289 for Option 1 technologies to 0.303 for Option 2 technologies. Given that Option 1 would require more turbines than Option 2, it is predicted to result in a greater collision risk for American white pelicans.

Water-associated birds are susceptible to mortality at solar facilities. These species may misperceive solar arrays as waterbodies and attempt to land on them (i.e., the lake effect), resulting in injury and mortality.

Water-associated birds have been reported to avoid wind farms potentially being displaced over 0.3 miles (600 meters) (Larsen and Madsen 2000; Rees 2012). With the removal of the eastern portion of the Project prior to submission of the ASC, turbines are not expected to be situated within 0.3 miles of suitable American white pelican habitat; therefore, potential barriers to American white pelican are predicted to be limited.

Project construction (Turbine Options 1 and 2, solar arrays, BESS, substations, and the comprehensive Project) is predicted to have a negligible impact on the American pelican that is short term, unlikely to occur, and limited in extent. During operation of the turbines (Options 1 and 2), solar arrays, and comprehensive Project impacts on the American pelican are predicted to be medium magnitude, long term, unlikely to occur, and confined. Operation of the BESS and substations is not predicted to interact with American white pelicans, resulting in a negligible magnitude. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, unlikely to occur, and confined.

Bald Eagle

The Applicant reported seven bald eagle (*Haliaeetus leucocephalus*) territories within 10 miles of the Lease Boundary, all but one of which were active during at least one survey round. Nest sites were approximately 3.7 to 10.7 miles from the location of the proposed turbines. Although territories were recorded near the Project location, the Applicant notes that bald eagle occurrence within the Lease Boundary is low and that there is little suitable habitat for this species, such as suitable foraging waterbodies and nesting trees. Based on the lack of nesting observed within the Lease Boundary and the limited observations of bald eagles during surveys, it is expected that the Project would not remove important or unique bald eagle habitat. Further, Project turbines would be located over 3.7 miles from the closest nest, and the ZOI applied to the Project is not predicted to overlap with known bald eagle nest sites.

The Applicant estimates that bald eagles are the 17th most likely large bird species to collide with the Project turbines, with an estimated exposure index of 0.01. The Applicant also reports that no bald eagle fatalities have been reported at the nearby Nine Canyon Wind Power Project (Horse Heaven Wind Farm, LLC 2022). Bald eagles are expected to continue to fly over the Project during operation and would be exposed to a risk of collisions (Horse Heaven Wind Farm, LLC 2022). The exposure index for bald eagles is approximately 1.1 to 1.3 times greater for Option 2 technologies than Option 1 technologies. There is uncertainty regarding whether the increased risk exposure for Option 2 would be offset by the increased number of turbines proposed in Option 1. Other sources of mortality could include collisions with other infrastructure and vehicles. Bald eagles could collide with solar arrays if birds are foraging around the facility, though there is limited information on interactions between solar facilities and raptors. Bald eagle populations have increased over the past 30 years, and the species has been removed from the federal endangered species list and downgraded in Washington State from threatened to sensitive. Short-term population trends are generally considered stable to increasing (Hammerson and Cannings 2022). Given that the population is stable to increasing, bald eagles are considered resilient to minor pressures on population, such as infrequent mortality.

The Project could create a temporary barrier to bald eagle movement during construction and onset of operation because these stages would introduce new disturbances to the landscape. Bald eagles are tolerant of human activity and typically coexist with human development (Hammerson and Cannings 2022) and are expected to adapt to Project operations. Further, based on data provided in the ASC, the Project would not bisect bald eagle nesting and foraging habitat.

Project construction (Turbine Options 1 and 2, solar arrays, BESS, substations, and the comprehensive Project) are predicted to have a negligible impact on bald eagle that is short term and feasible within the Lease Boundary (confined). During operation Project-related impacts on bald eagle from Turbine Option 1 and 2 and the comprehensive Project are predicted to be low magnitude, long term and feasible in the Lease Boundary (confined). Operation of the solar arrays, BESS and substations are predicted to have a negligible effect to bald eagle that is long term, feasible, and limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Burrowing Owl

Predictive mapping provided by the Applicant in response to data requests (Horse Heaven Wind Farm, LLC 2021c) characterizes the Lease Boundary as either summer or year-round burrowing owl (*Athene cunicularia*) habitat. The Applicant notes that the Lease Boundary provides suitable foraging and nesting habitat for burrowing owl (Horse Heaven Wind Farm, LLC 2022). Priority Habitats and Species (PHS) data report 32 burrowing owl nests or burrows within 2 miles of the Lease Boundary, including four within the Lease Boundary (WDFW n.d.). The Applicant notes that removal of shrub-steppe habitat could reduce foraging and nesting habitat (Horse Heaven Wind Farm, LLC 2022), though burrowing owls can use marginal habitat, such as roadside and agricultural fields. It is predicted that the Project would result in the permanent loss of approximately 51 acres of shrub and 51 acres of grassland habitat. While agricultural habitat is less suitable for burrowing owls, the predicted loss of 489 acres of agricultural habitat associated with the Project is considered to be a reduction in moderate to low suitable habitat. Temporarily disturbed habitat is expected to be restored following construction, and therefore the temporary loss of 194 acres of shrub and 417 acres of grassland may impact burrowing owls during the Construction and early Operation Stages. Modified habitat under solar facilities may continue to provide burrowing owls with habitat, particularly in agricultural areas where post-construction remediation may improve plant diversity.

In addition to loss of habitat, construction of the Project could damage occupied and suitable unoccupied burrows, reducing the availability of these features on the landscape. Degradation of breeding and wintering habitat, including loss of suitable burrow sites is considered a threat to the species (Poulin et al. 2020).

The Project is not predicted to overlap with the 15 breeding locations reported within 2 miles of the Lease Boundary. The Applicant reports that noise from the Project could disturb burrowing owls nesting in these locations because they are within 0.5 miles of the Project. Species-specific surveys for burrowing owls were not conducted as part of the ASC; therefore, it is possible that other burrows may exist within the Lease Boundary. Burrowing owls are generally tolerant of human activity; however, reduced reproductive success has been recorded near construction activities (Poulin et al. 2020). The potential reduction in habitat suitability due to Project-related disturbance has been addressed under “Indirect Habitat Loss,” above.

Burrowing owls typically stay low to the ground during hunting and movement (below 33 feet [10 meters]) (Poulin et al. 2020). This behavior (remaining close to the ground) reduces the potential for interaction with turbine rotor swept area, which is approximately 85 feet (26 meters) above the ground. However, during courtship burrowing

owls conduct courtship flights at heights of 100 to 130 feet (30 to 40 meters; Poulin et al. 2020), which extends into the rotor swept area. Burrowing owl may also be suspectable to collisions with turbines during migration.

Substantial burrowing owl mortality was recorded at the Altamont Pass Wind Resource Area (California), with estimates of over 100 burrowing owl mortalities per year (Smallwood et al. 2007). However, the turbines in the Altamont Pass Wind Resource Area were generally older-generation, smaller turbines with hub (nacelle) heights approximately 60 feet (18 meters) to 115 feet (35 meters), whereas the Applicant expects Project turbines to be taller (266 feet [89 meters] to 518 feet [125 meters]). Repowering portions of the turbines in the Altamont Pass Wind Resource Area by replacing older turbines with taller towers reportedly reduced burrowing owl mortality by 34 to 100 percent (Smallwood et al. 2009); therefore, the Project's turbines may not pose the same risk to burrowing owls as those at the Altamont Pass Wind Resource Area.

The rate of burrowing owl fatalities is correlated with the species' use of an area. Smallwood et al. (2010) reported a positive relationship between burrowing owl fatalities and the number of burrows within 180 feet (55 meters) of wind turbines. No burrowing owl burrows have been recorded in the Lease Boundary, suggesting reduced potential risk of burrowing owl mortality from turbine collision. Burrowing owls typically stay low to the ground during hunting and movement (Poulin et al. 2020). The solar arrays would be within the flight height of burrowing owls and therefore pose a risk of collision-related mortality. Walston et al. (2015) reported seven burrowing owl mortalities between 2011 and 2014 at three of seven solar facilities in California, representing 0.51 percent of all recorded wildlife mortalities observed at those sites during that period. Smallwood (2022) estimated a mortality rate of 0.182 collision fatalities/MW/year for solar photovoltaic projects in California. No burrowing owls have been reported in the Lease Boundary; however, the solar arrays may increase the risk of burrowing owl mortalities from collisions if burrowing owls are present.[33]

Strikes with burrowing owls resulting in mortalities could occur during construction and along access roads during construction and operation. Burrowing owls would be susceptible to construction-related mortality around burrows as machinery could crush adults, young, or eggs in burrow sites. New access roads would introduce new sources of mortality, though Project-related traffic through the Operation Stage is expected to be limited.

The Project is not expected to require the use of pesticides or rodenticides, which could lead to ingestion of toxic materials. Changes in prey distribution or density due to Project construction and operation could impact burrowing owl survivorship and recruitment.

New access roads created for the Project would bisect suitable burrowing owl habitat, potentially creating new barriers to movement and further fragmenting burrowing owl habitat.

Long and short term North American population trends for burrowing owls are predicted to show declines around 30 percent, although the Washington State populations are relatively low, with declines of approximately 1.5 percent annually between 1968 and 2005 (Hammerson and Cannings 2022; Poulin et al. 2020; WDFW 2022). Based on these trends and the species' potential tolerance to some human disturbance, the population is not predicted to be resilient to habitat and population pressures.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a medium impact on burrowing owls that is constant for burrowing owl habitat loss but short term for burrowing owl mortality and disturbance. Habitat loss during construction is assessed as

[33] The Applicant did not conduct species-specific burrowing owl surveys within the Lease Boundary prior to issuing this EIS.

unavoidable, while disturbance to burrowing owls is probable and mortality is feasible. Impacts are considered confined to the Lease Boundary.

Operation of turbines and the comprehensive Project is predicted to have a medium-magnitude, constant impact on burrowing owls that are unavoidable and confined to the Project Lease Boundary. Impacts from operation of the solar arrays, BESS, and substations are predicted to be medium magnitude, constant, feasible, and confined to the Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, unlikely, and confined.

Ferruginous Hawk

Ferruginous hawks (*Buteo regalis*) have been documented foraging and nesting within and near the Lease Boundary. Fifty-eight ferruginous hawk nests were documented within 2 miles of the proposed turbine locations (56 from PHS data, 2 recorded by the Applicant), two of which were occupied at least once over the four-year period during which the Applicant conducted surveys (Horse Heaven Wind Farm, LLC 2022). PHS data document 56 ferruginous hawk nests within 2 miles of the Lease Boundary, including 10 within the Lease Boundary (WDFW n.d.). One of the active nests was recorded approximately 0.5 miles from an area of temporary disturbance associated with construction of a turbine pad. Ferruginous hawks were recorded infrequently in the Lease Boundary. It is expected that ferruginous hawks nesting near the Project may forage in the Lease Boundary. Project-related losses of shrub, grassland, and agricultural habitat that could support small mammal populations are considered a reduction in potential foraging habitat for the ferruginous hawk. Direct habitat loss estimates are provided in **Table 4.6-7** and are estimated based on the ferruginous hawk's 2-mile core habitat and the 6-mile range habitat (areas measured as a radius around the two active nests). Direct habitat loss within 2 miles (measured as a radius from the nest) of historical nest locations may reduce the capacity for these areas to be reoccupied in the future. Loss and degradation of ferruginous hawk habitat leading to fewer breeding locations, and loss of habitat that supports prey items, both affect the persistence of the species in Washington State (Hayes and Watson 2021).

Table 4.6-7: Potential Direct Loss of Ferruginous Hawk Habitat

Habitat Type	Core Habitat (acres)	Range Habitat (acres)
Agriculture	260	6,271.6
Developed/Disturbed	0.6	21.1
Dwarf Shrub-steppe	0	10.0
Eastside (Interior) grassland	8.3	80.4
Grassland	0.1	<0.1
Non-native Grassland	10.5	121.7
Planted Grassland	54.5	423.9
Rabbitbrush Shrubland	20.8	854.5
Sagebrush Shrub-steppe	5.3	17.0
Shrubland	0	<0.1

Source: Horse Heaven Wind Farm, LLC 2022; Tetra Tech 2021
Notes: Calculations of areas were completed independently using spatial files provided by the Applicant.

Estimating Project-related indirect loss of ferruginous hawk habitat is challenging because this species displays some tolerance of wind power projects in the short term (Watson et al. 2018); however, long-term monitoring of continued territory occupancy is not well studied. Watson et al. (2018) note that while breeding pairs currently occupying territories near wind farms may continue to occupy those territories, this behavior may not reflect future

recruitment of birds into territories near wind farms. This is consistent with the results of a study conducted in the Columbia Plateau Ecoregion that reported a decline in ferruginous hawk nest success with increased wind turbines in the bird's home range buffer (7,907 acres) (Kolar and Bechard 2016). The Applicant notes that the Project could result in a reduction of ferruginous hawk territory occupancy and nesting success, as well as modification of foraging habitat (Horse Heaven Wind Farm, LLC 2022). These changes could result in the species' abandonment of the territory in and adjacent to the Project in the long term. **Table 4.6-8** provides a summary of available habitat within the ferruginous hawk core habitat and range habitat that may be indirectly impacted by the Project. Refinement of potential indirect loss estimates would require additional data regarding the foraging patterns specific to the pair currently occupying the territory in the Lease Boundary.

Table 4.6-8: Potential Indirect Loss of Ferruginous Hawk Habitat

Habitat Type	Core Habitat (acres)	Range Habitat (acres)
Agriculture	3905.9	32,051.8
Developed/Disturbed	21.6	587.6
Dwarf Shrub-steppe	0	13.3
Eastside (Interior) Grassland	8.3	76.5
Grassland	458.1	3736.3
Non-native Grassland	165.3	1179.4
Planted Grassland	515.2	2586.8
Rabbitbrush Shrubland	107.1	1563.4
Sagebrush Shrub-steppe	84.8	259.6
Shrubland	273.4	796.2

Source: Horse Heaven Wind Farm, LLC 2021a;
Notes: Calculations of areas were completed independently using spatial files provided by the Applicant.

Ferruginous hawks may become tolerant of wind farms constructed within their territories and have been reported to continue to forage between turbines during operation (Watson et al. 2018). This behavior may increase the risk of collision with turbines as they move between the structures. The Applicant notes that eight wind-farm-related ferruginous hawk fatalities have been recorded in the Pacific Region, though no ferruginous hawk fatalities have been reported at the nearby Nine Canyon Wind Project (Horse Heaven Wind Farm, LLC 2022) and has estimated ferruginous hawks to have an exposure index of <0.1, ranking them as the 24th most likely species to collide with the turbines. While the exposure index calculated for this species is low, Hayes and Watson (2021) report that the local (Benton and Franklin Counties) and state-wide populations are in substantial decline.

The exposure index for ferruginous hawks is approximately 1.3 times greater for Turbine Option 1 (GE 3.03-MW) than for the other three turbine technologies (GAL 2022; **Appendix 4.6-1**). In addition, Option 1 also requires a larger number of turbines, and therefore, it is expected that this option would result in a greater collision risk for ferruginous hawks (GAL 2022).

Changes in prey and bird community structures may also impact ferruginous hawks. Changes in density of prey (e.g., ground squirrel, rabbit) due to the Project could impact survivorship of adults and young. Prey density could be altered by Project-related habitat loss, barriers to movement, and changes in available shelter sites under solar arrays that could reduce hunting success. In addition, development of wind farms can change the composition of bird communities (Falavigna et al. 2020), potentially resulting in an increase in other raptor or corvid species that compete with ferruginous hawk for resources. For example, Kolar and Bechard (2016) noted that turbines changed the nesting success of ferruginous hawk but found no changes to the nesting success of more common

Buteo species (red-tailed hawk [*Buteo jamaicensis*] and Swainson's hawk [*Buteo swainsoni*]). Similarly, corvid populations may also have a positive response to the Project as it can create more nesting and perching opportunities on the transmission structures and power poles. These species may compete with the ferruginous hawk for resources potentially impacting nesting success and adult survivorship.

Ferruginous hawks may also collide with other facility infrastructure such as powerlines and weather towers. Ferruginous hawks could collide with solar arrays if they are foraging around the facility, though there is limited information on interactions between solar facilities and raptors.

The Project is not predicted to require the use of pesticides or rodenticides, which could further impact prey populations or bioaccumulate in hawks through prey consumption.

The ferruginous hawk population is declining in the baseline case due to mortality and habitat loss. Decreased breeding activity and nest productivity (i.e., the number of fledged young per occupied territory) have been documented across Washington State, including in core range in Benton County (Hayes and Watson 2021). Based on documented declines, the local population may not be resilient to loss of individuals and habitat, meaning that the population may not be able to adapt or recover from additional loss of habitat or individuals. Unlike other hawk species that occupy grassland habitats (e.g. Swainson's hawk), ferruginous hawk are a grassland specialist and show poor adaptability to changing landscape conditions, such as conversion to agriculture (COSEWIC 2008). Hayes and Watson (2021) identify four dominate causes of ferruginous hawk decline in Washington State: Habitat loss/ degradation/ fragmentation, reduction of prey base, collisions with wind turbines, and climate change. The Project is expected to contribute to three of these threats (habitat loss/degradation, loss of prey base, collisions with wind turbines). Development within suitable ferruginous hawk habitat, including territories not currently occupied, may impact the recovery of the species by limiting habitat availability for recruitment of new nesting pairs. While the Project may contribute to three of the threats to ferruginous hawk, it is also expected to contribute to the production of renewable energy thereby reducing regional contribution to climate change.

Construction of Turbine Options 1 and 2, BESS, substations, and comprehensive Project is predicted to have a high-magnitude impact on ferruginous hawks that is constant and unavoidable for habitat loss, and short term and probable for disturbance. These construction impacts are predicted to be confined to the Project Lease Boundary. Construction of the solar arrays is predicted to have a medium-magnitude, constant, unavoidable impact on ferruginous hawks that is limited in extent. Operation of the turbines (Options 1 and 2) and comprehensive Project is predicted to result in a high-magnitude, constant impact that is unavoidable within the Project Lease Boundary (confined). Operation of the solar arrays is predicted to have a medium-magnitude, constant impact that is unavoidable within the Project Lease Boundary (confined). Operation of the BESS and substations is predicted to have a negligible impact that is constant, unavoidable, and limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Golden Eagle

The Lease Boundary does not overlap predicted golden eagle (*Aquila chrysaetos*) breeding habitat (NatureMapping n.d.); however, the Applicant reports that suitable nesting habitat occurs along cliffs adjacent to the Columbia River (Horse Heaven Wind Farm, LLC 2022). Watson et al. (2014) suggested that golden eagle nesting may be impacted by wind farms within 8 miles of nesting sites. The Applicant reports that golden eagle nests were not observed within 10 miles of the Lease Boundary. Therefore, the Project is not expected to result in indirect loss or degradation of suitable golden eagle nesting habitat because occupancy of this habitat type has

not been observed. Golden eagles were observed flying over and perching within the Lease Boundary and could forage on small mammals in the Lease Boundary. The Project may result in direct and indirect foraging habitat loss.

The Applicant has predicted that the golden eagle is the 22nd most likely large bird species to collide with the Project. While collisions may not be predicted as likely, the Applicant notes that golden eagles are predicted to continue to use the Lease Boundary during Project operation, and as a result, the Project would pose a risk of mortality due to collision. The exposure index for golden eagles under Option 1 (GE 2.82-MW and GE 3.03-MW turbines) is approximately 1.2 times greater than Option 2 (SG 5.5-MW turbine), but the same as the Option 2 SG 6.0-MW turbine proposed for Option 2. Because Option 1 would also require a greater number of turbines than Option 2, it is expected to result in a greater collision risk for golden eagles. Golden eagles may also collide with other facility infrastructure such as powerlines and weather towers. Golden eagles could collide with solar arrays if they are foraging around the facility, though there is limited information on interactions between solar facilities and raptors.

Changes in prey availability due to loss of habitat or loss of access could contribute to impacts on golden eagles' survivorship. The Applicant has not proposed the use of rodenticides that could contribute to reduction of prey and consumption of poisons by eagles.

Golden eagle populations in western North America are predicted to be stable or slightly declining (Hammerson and Cannings 2022; Katzner et al. 2020). Declines are predicted to be associated with loss of shrub and jackrabbit habitat (Katzner et al. 2020). The Project is predicted to contribute to the threats to this species due to loss of prey base and mortality. As the regional populations may be stable or slightly declining, they are expected to be moderately resilient to Project-related stresses resulting from habitat loss and mortality.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a negligible impact on golden eagles that is short term, unlikely to occur, and confined to the Project Lease Boundary. Operation of the turbines (Options 1 and 2) and comprehensive Project is predicted to have a medium-magnitude, long-term impact on golden eagles that may feasibly occur within the Project Lease Boundary (confined). Operation of the solar arrays, BESS, and substations is predicted to have a negligible, long-term impact on golden eagles that is unavoidable and confined to the Project Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, unlikely, and confined.

Great Blue Heron

One great blue heron (*Ardea herodias*) was observed flying within the Lease Boundary during the field studies (Horse Heaven Wind Farm, LLC 2022). Great blue herons are year-round residents within the Lease Boundary. Suitable nesting habitat is unlikely to occur within the Lease Boundary; however, nesting may occur near the Columbia and Yakima Rivers. Suitable foraging habitat within the Lease Boundary for great blue heron includes agricultural fields, grasslands, and shrubland (Horse Heaven Wind Farm, LLC 2022). Permanent disturbance would directly impact approximately 489 acres of agricultural land, 51 acres of grasslands, and 51 acres of shrubland.

Threats to great blue heron typically include contamination of food sources, alteration of foraging habitat (e.g., draining wetlands), and disturbance of nesting sites. As suitable nesting areas are not available within the Lease Boundary, indirect impacts, such as sensory disturbance, on nesting areas are not anticipated. In addition, since impacts on wetlands are not anticipated during Project operations, potential wetland foraging habitat would be

unaffected. Other types of foraging habitats are available in agricultural land, grassland, and shrubland that surrounds the Project footprint, and as a result, great blue herons may avoid some of these foraging areas during Project operations due to sensory disturbance. During the breeding season, adult herons typically remain within approximately 6.2 miles (10 kilometers) of the nest but may use home ranges up to 18.6 miles (30 kilometers) (Vennesland 2004). The ZOI described above would account for the foraging habitat loss that may be an indirect impact from the Project.

The mean exposure index for great blue herons is estimated to be <0.001 for Option 1 turbines and <0.0001 for Option 2 turbines (GAL 2022; Horse Heaven Wind Farm, LLC 2022). Fatalities of great blue heron have been documented at wind turbines in Washington State, including one at the adjacent Nine Canyon Wind Farm (Horse Heaven Wind Farm, LLC 2022). Five fatalities have been documented at wind turbines in the United States. (AWWI 2020). Mortality of individuals is possible during Project operations (Horse Heaven Wind Farm, LLC 2022). Given that Option 1 would require more turbines than Option 2, Option 1 is expected to result in a greater risk of impacts on great blue heron (GAL 2022; **Appendix 4.6-1**).

Great blue herons could also collide with power lines and towers. Collisions with solar arrays are not expected, given the limited availability of foraging and nesting habitat in the Lease Boundary.

Populations in southern Washington State are predicted to be declining, potentially by more than 1.5 percent per year (Vennesland and Butler 2020). Other regional populations may be stable or increasing. The population may be stable or slightly declining and is expected to be moderately resilient to imposed stresses. The Project is not predicted to substantially contribute to habitat loss or mortality of great blue heron.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a negligible impact on great blue herons that is long term and unavoidable for habitat loss and short term and feasible for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During operation of the turbines (Options 1 and 2) and comprehensive Project, impacts are predicted to have a medium-magnitude, long-term impact on great blue herons that may feasibly occur within the Project Lease Boundary (confined). Operation of the solar arrays, BESS, and substations is predicted to have a negligible, long-term impact on great blue herons that is unavoidable and confined to the Project Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Loggerhead Shrike

One loggerhead shrike (*Lanius ludovicianus*) was observed during field surveys (Horse Heaven Wind Farm, LLC 2022). The PHS database reports seven loggerhead shrike occurrences within 2 miles of the Lease Boundary, three of which are nest sites (WDFW n.d.). Five of the loggerhead shrike occurrences are reported from within the Lease Boundary, two of which are nest locations. Nesting habitat is available within the Lease Boundary in hedgerows, around abandoned homesteads, and on shrubland (Horse Heaven Wind Farm, LLC 2022). Species-specific surveys for loggerhead shrike were not conducted for the Project (Horse Heaven Wind Farm, LLC 2022). Permanent disturbance would directly impact approximately 51 acres of grasslands and 51 acres of shrubland. An additional 706.4 acres of shrubland would be converted to low-growing grassland as modified habitat under solar arrays, which would further reduce nesting habitat.

Loggerhead shrikes are associated with shrub-steppe ecosystems and usually nest within shrubs (Johnson and O'Neil 2001). Shrubs are also used by loggerhead shrikes for singing and foraging perches, although they generally avoid foraging in dense areas of cheatgrass (*Bromus tectorum*) (Johnson and O'Neil 2001). In addition,

nesting sites may be selected near ground squirrel burrows because of their influence on vegetation and landscape (Smallwood and Smallwood 2021). Project construction could result in reduced material available for nesting and may impact ground squirrel populations, which could have indirect impacts on nesting loggerhead shrikes (Smallwood and Smallwood 2021).

Loggerhead shrikes require larger nesting territories due to the species' predatory behavior (Smallwood and Smallwood 2021); therefore, habitat fragmentation from the Project could impact the number of breeding pairs in the Lease Boundary. In addition, further degradation of the remaining patches of shrubland from potential spread of invasive plants may further reduce habitat availability. For example, cheatgrass is a common invasive plant throughout the Lease Boundary, and further spread of this species would degrade the remaining native habitat for loggerhead shrikes.

One fatality of a similar species, the northern shrike (*Lanius borealis*), has been documented at a wind facility in Washington State (Horse Heaven Wind Farm, LLC 2022), and 13 loggerhead shrike fatalities have been reported across the United States in a metadata compilation of fatality reports from 227 wind power projects between 2002 and 2018 (AWWI 2020). Fatality estimates of loggerhead shrikes at wind turbines in the Altamont Pass Wind Resource Area predicted an averaged 10.6 fatalities per year once the new generation turbines were installed, which represents a reduction from 93.4 per year when the old-generation turbines were operating (Smallwood and Smallwood 2021). Based on surveys within the Lease Boundary, loggerhead shrikes are anticipated to occur during Project operations (Horse Heaven Wind Farm, LLC 2022). Certain behaviors of loggerhead shrikes may increase susceptibility to turbine strikes, such as hovering and kiting in high winds and in updrafts to search for prey, similar to hawks. These updrafts often occur at the top of slopes, which also often correspond with the siting of wind turbines (Smallwood and Smallwood 2021). Loggerhead shrikes also display chasing behavior, often chasing other birds for several hundreds of yards, which can distract them from surrounding threats such as wind turbines (Smallwood and Smallwood 2021). Similarly, loggerhead shrikes could also collide with other solar arrays and other project infrastructure such as met towers. Walston et al. (2015) reported 17 loggerhead shrike mortalities across seven solar facilities in California, equal to approximately 1.23 percent of the total mortalities recorded at those sites.

Because of the species' occurrence in the Lease Boundary, combined with its behavioral traits and considering the records of strikes at wind turbine facilities and solar facilities, Project operations are anticipated to result in fatalities. The Applicant did not provide an exposure index for loggerhead shrikes; therefore, it is expected that Option 1, which would involve a greater number of turbines than Option 2, would likely result in a higher risk to loggerhead shrikes (GAL 2022; **Appendix 4.6-1**).

Loggerhead shrike populations are estimated to be declining approximately 3.5 to 5 percent per year (Yosef 2020), although the rate of decline varies across regions. The Project is predicted to contribute to the loss of suitable loggerhead shrike foraging and nesting habitat and may pose some risk of mortality. Loggerhead shrike populations are expected to be moderately resilient to imposed stresses.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a low-magnitude impact on loggerhead shrikes that is constant and unavoidable for habitat loss and short term and probable for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During operation of the turbines (Options 1 and 2) and comprehensive Project, impacts are predicted to have a medium-magnitude, constant, unavoidable impact on loggerhead shrikes within the Project Lease Boundary (confined). Operation of the solar arrays is predicted to have a low-magnitude, constant, unavoidable impact on loggerhead shrikes that is confined to the Project Lease Boundary. Operation of

the BESS and substations is predicted to result in a negligible, constant, unavoidable impact that is confined to the Project Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Prairie Falcon

The Lease Boundary may overlap core prairie falcon (*Falco mexicanus*) breeding habitat (NatureMapping n.d.); however, suitable nesting habitat occurs on bluffs and canyons within the Lease Boundary, and nests were reported within 5 miles of the Lease Boundary. PHS data report 12 occurrences of prairie falcon within 2 miles of the Lease Boundary, though none within the Lease Boundary (WDFW n.d.). Nine of the occurrences are nest sites. The Applicant reports prairie falcons hunting and perching in cropland and grassland, and it is expected that most of the Lease Boundary could provide suitable hunting habitat, though agricultural areas are of lower quality than native range (Steenhof 2020). Therefore, the Project is predicted to result in the permanent loss of approximately 102 acres (51 acres of grasslands and 51 acres of shrubland) of potential foraging habitat for this species. While loss and degradation of foraging habitat is considered a threat to the species, nesting habitat is generally a more limiting feature for prairie falcon than foraging habitat (Steenhof 2020). Active nests were not recorded within the Lease Boundary. In addition to direct habitat loss, the Project may disturb prairie falcons foraging in the Lease Boundary. Additional foraging habitat may be indirectly lost around turbines and other Project features.

Prairie falcons are predicted to be the 21st most likely large bird species to collide with turbines (exposure indices from 0.003 to 0.01, depending on the technology option selected). Two prairie falcon mortalities have been reported from wind farms in Washington State (Horse Heaven Wind Farm, LLC 2022). Prairie falcons were reported to be most abundant in the Lease Boundary during the fall and winter, when the species would be at greatest risk for collision. Given that the risk of collision with turbines during the summer is considered low based on species observation during field surveys, the risk of Project-related collision mortalities resulting in nest failure or impacts on fledglings is considered low.

Exposure indices for prairie falcons are 1.2 to 3.3 times greater for Option 1 than Option 2, and because Option 1 would also require a greater number of turbines than Option 2, it is expected to result in greater collision risk for prairie falcons (GAL 2022; **Appendix 4.6-1**).

Prairie falcons may also collide with other facility infrastructure such as powerlines and weather towers. Prairie falcons could collide with solar arrays if they are foraging around the facility, though there is limited information on interactions between solar facilities and raptors.

Changes in abundance of or access to prey (e.g., ground squirrels, horned lark) may also impact the survival of prairie falcons. The Applicant does not propose using rodenticides or pesticides that may be consumed by prey species; however, changes to prey occupancy of the Lease Boundary (e.g., avoidance or increased shelter under solar arrays) could impact prairie falcon hunting, resulting in changes in survivorship.

Short-term trends suggest that the North American prairie falcon population is stable (Hammerson and Cannings 2022), though populations in western North America may be declining (Steenhof 2020). Given that the populations may be stable or in slight decline, they are predicted to be moderately resilient to the impacts of the Project.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a medium-magnitude impact on prairie falcons that is constant and unavoidable for

habitat loss and short term and probable for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During operation of the turbines (Options 1 and 2) and comprehensive Project, impacts are predicted to have a medium-magnitude, constant, unavoidable impact on prairie falcons within the Project Lease Boundary (confined). Operation of the solar arrays is predicted to have a low-magnitude, constant, feasible effect on prairie falcons that is confined to the Project Lease Boundary. Operation of the BESS and substations is predicted to result in a negligible, constant, unavoidable impact that is limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, unlikely, and confined.

Ring-necked Pheasant

Ten observations of ring-necked pheasants (*Phasianus colchicus*) were recorded within the Lease Boundary during field surveys for the Project (Horse Heaven Wind Farm, LLC 2022). PHS data report 10 occurrences within 2 miles of the Lease Boundary (WDFW n.d.). Ring-necked pheasant is native to Asia, but populations were introduced to North America. Breeding habitat includes most open habitats in eastern Washington. This species is highly adaptable and uses a variety of habitats. Benton County is within a pheasant management zone, and agricultural and grassland habitat in the Lease Boundary is expected to provide habitat for ring-necked pheasants (Horse Heaven Wind Farm, LLC 2022). The Project would result in permanent disturbance of 489 acres of agricultural land and 51 acres of grasslands, which could provide habitat for ring-necked pheasants.

Ring-necked pheasants could be indirectly impacted from Project operations. Ring-necked pheasants experience high road mortality, particularly in April and May (Giudice and Ratti 2020). The Project would result in an increase in permanent roads within the Lease Boundary, with the addition of 107.3 miles of access roads within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). Access roads would be used by on-site workers for operation and maintenance purposes. This could increase the mortality of ring-necked pheasants from vehicle collisions during Project operations.

Habitat degradation has been documented throughout the range of ring-necked pheasants in the United States, with the increase in industrial-scale farming and associated loss of fallow land (Giudice and Ratti 2020). Degradation of ring-necked pheasant habitat is largely attributed to changes in agricultural practices, increased livestock grazing, increased use of pesticides, and loss of wetlands (Giudice and Ratti 2020). The Project is not anticipated to cause further degradation of ring-neck pheasant habitat beyond the areas of permanent loss, as the agricultural practices and livestock grazing within the Lease Boundary are not anticipated to change as a result of the Project.

A mean exposure index was not calculated for ring-necked pheasants because the species' flight heights were not available from field surveys (Horse Heaven Wind Farm, LLC 2022). Ring-necked pheasants spend most of their time on the ground, using walking as the main mode of locomotion. Ring-necked pheasants will run to seek cover from a threat rather than flush (Giudice and Ratti 2020). However, the species is the seventh most commonly reported fatality at wind facilities in Washington (Horse Heaven Wind Farm, LLC 2022). At the adjacent Nine Canyon Wind Project, 14 percent of bird fatalities during post-construction monitoring were ring-necked pheasants (Horse Heaven Wind Farm, LLC 2022). As ring-necked pheasant mortalities are fairly common at wind farms in the region, it is expected that the Project would result in a risk of ring-necked pheasant mortality.

Ring-necked pheasants may also collide with other facility infrastructure such as powerlines and weather towers. Ring-necked pheasants could collide with solar arrays if birds are foraging around the facility, although there is limited information on interactions between solar facilities and pheasants.

The species has been introduced to the area and is stocked by the WDFW for hunting (WDFW 2022). As ring-necked pheasants are an introduced species, adaptable to agricultural environments and anthropogenic changes, and the populations are supported through captive breeding to facilitate hunting, local populations are expected to be resilient to Project impacts.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a low-magnitude impact on ring-necked pheasants that is long term and unavoidable for habitat loss and short term and probable for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During operation of turbines (Options 1 and 2) and comprehensive Project, impacts are predicted to have a low-magnitude, long-term, unavoidable impact on ring-necked pheasants within the Project Lease Boundary (confined). Operation of the solar arrays, BESS, and substations is predicted to have a negligible, long-term, unavoidable impact on ring-necked pheasants that is confined to the Project Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Sagebrush Sparrow

As noted in the ASC, one sagebrush sparrow (*Artemisiospiza nevadensis*) was documented in the Lease Boundary during field surveys (Horse Heaven Wind Farm, LLC 2021a). Sagebrush sparrow is considered a shrub-steppe obligate species and occurs where shrubs, primarily big sagebrush (*Artemisia tridentata*), have greater cover (WDFW 1996). Small patches of suitable nesting and foraging habitat are present in the Lease Boundary, with larger, more contiguous shrub-steppe habitat available north of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). PHS data report one occurrence of sagebrush sparrow within 2 miles of the Lease Boundary (WDFW n.d.). Breeding territory is variable in size and shape (Martin and Carlson 2020). Nests are usually constructed within shrubs, predominantly sagebrush, but may be constructed on the ground or in bunchgrasses (Martin and Carlson 2020). The Project would result in the permanent loss of 2 acres of shrub-steppe, and an additional 0.3 acres within the solar arrays would become modified habitat. In addition, it is predicted that approximately 1,019 acres of shrub-steppe habitat is within the ZOI and may be impacted during operation. Permanent loss and disturbance from the Project could reduce breeding and foraging opportunities for sagebrush sparrows.

Habitat fragmentation, in general, is likely the largest indirect impact on sagebrush sparrow populations regionally. Shrub-steppe ecosystems have been impacted by livestock grazing, conversion to agricultural land, and energy and natural resource development, leaving many shrub-steppe ecosystems severely fragmented (Knick et al. 2003). As a shrub-steppe obligate species, further degradation or fragmentation of remaining habitat could impact populations. While population changes are not typically observed directly after alteration of vegetation, densities of sagebrush sparrow may decline in subsequent years (Martin and Carlson 2020).

One fatality of sagebrush sparrow has been recorded at wind farms in Washington (Horse Heaven Wind Farm, LLC 2022). Mean exposure indices for sagebrush sparrows were not calculated because observations do not have associated flight heights (Horse Heaven Wind Farm, LLC 2022). Sparrows account for an estimated 6.0 percent of all bird mortalities at wind turbines; however, sagebrush sparrow mortalities specifically have not been reported (Erickson et al. 2014). Foraging by sagebrush sparrows is typically done while walking or hopping on the ground. On breeding ranges, individuals engage in long or short flights when disturbed, generally over the top of shrubs (Martin and Carlson 2020). As these movement behaviors are generally low to the ground (e.g., near the top of shrubs), these behaviors limit the likelihood of interaction with turbine strike zones.

Sagebrush sparrows could collide with other Project infrastructure, such as solar arrays, towers, and buildings. Walston et al. (2015) reported that three fatalities of sagebrush sparrow were recorded at one of seven solar facilities included in their review of avian mortality at solar facilities between 2011 and 2014, representing 1.95 percent of the total mortalities recorded among the facilities. Sagebrush sparrow populations are in decline, notably in Washington (Martin and Carlson 2020). However, based on the low incidence of occurrence within the Lease Boundary, movement behaviors, and the low observed mortality rate for the species, the Project is not anticipated to substantially contribute to population decline for sagebrush sparrow.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a low-magnitude impact on sagebrush sparrows that is constant and unavoidable for habitat loss and short term and probable for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During operation of the turbines (Options 1 and 2), solar arrays, and comprehensive Project, impacts are predicted to be medium magnitude, constant, unavoidable and confined to the Project Lease Boundary. Operation of the BESS and substations is predicted to have a negligible, long-term, unavoidable impact on sagebrush sparrows that is confined to the Project Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Sage Thrasher

Three observations of sage thrasher (*Oreoscoptes montanus*) were recorded within the Lease Boundary during field surveys in spring and fall (Horse Heaven Wind Farm, LLC 2022). Small patches of suitable nesting and foraging habitat are present in the Lease Boundary, and larger, more contiguous shrub-steppe habitat is available north of the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). Sage thrasher is likely to occur within the Lease Boundary during the Operation Stage of the Project. PHS data do not report occurrences of sage thrasher within 2 miles of the Lease Boundary (WDFW n.d.). Sage thrasher is a shrub-steppe obligate species and occurs more frequently where cover is dominated by shrubs, primarily big sagebrush. Mean breeding territory size is variable and has been observed to range from approximately 2.4 acres (0.96 hectares) in Idaho to approximately 0.96 acres (0.39 hectares) in central Washington (Reynolds et al. 2020). The Project would result in the permanent loss of 2 acres of shrub-steppe, and an additional 0.3 acres would become modified habitat within solar arrays. In addition, it is predicted that 1,019 acres of shrub-steppe habitat is within the ZOI and may be impacted during operation. Permanent loss and disturbance from the Project could reduce nesting and foraging opportunities for sage thrashers.

Nests are constructed mainly in shrubs, predominantly sagebrush, but sage thrashers may construct nests on the ground under sagebrush (Reynolds et al. 2020). Habitat fragmentation, as discussed above, could impact breeding use by sage thrashers in the Lease Boundary. Habitat fragmentation is associated with increased nest predation and parasitism, resulting in reduced nest success in fragmented shrub-steppe. This may be a result of increased edge effects in fragmented landscapes (Johnson and O'Neil 2001). Increasing the linear distance of transmission lines may also increase predation on species breeding in sagebrush shrub-steppe (Knick et al. 2003).

In addition, sage thrashers are sensitive to human disturbance during the breeding season and will not approach the nest if an observer is within approximately 492 feet (150 meters approximately) (Reynolds et al. 2020). Increased human activity, including construction and maintenance workers and vehicle traffic, could cause indirect disturbance to nesting sage thrashers in the Lease Boundary.

One fatality of sage thrasher has been recorded at wind farms in Washington (Horse Heaven Wind Farm, LLC 2022). Mean exposure indices for sage thrasher were not calculated because observations do not have associated flight heights (Horse Heaven Wind Farm, LLC 2022). Sage thrashers commonly move by running within breeding territories and use quick, low flights as an escape response to seek cover (Reynolds et al. 2020). Sage thrashers could collide with other Project infrastructure, such as solar arrays, towers, and buildings.

Sage thrasher populations have declined an estimated 10 to 30 percent since 2003 (Hammerson and Cannings 2022). The Project is predicted to alter sage thrasher habitat, and construction and maintenance activities may disturb nesting thrashers. Sage thrashers are not expected to have frequent mortalities at the site.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, comprehensive) is predicted to have a low-magnitude impact on sage thrasher that is constant and unavoidable for habitat loss and short term and probable for disturbance and mortality. Construction impacts are expected to be confined to the Lease Boundary. During the operation of turbines (Options 1 and 2), solar arrays, and comprehensive Project, impacts are predicted to be medium magnitude, constant, unavoidable and confined to the Project Lease Boundary. Operation of the BESS and substations is predicted to have a negligible, long-term, unavoidable impact on sage thrasher that is confined to the Project Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Sandhill Crane

Observations of sandhill cranes (*Antigone canadensis*) totaled 3,050 individuals in 27 groups during field surveys for the Project. The majority of observations were during fall (Horse Heaven Wind Farm, LLC 2022). Sandhill cranes were observed traveling over the Lease Boundary but were not recorded landing or using habitat in the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). Sandhill cranes observed flying over the Lease Boundary were migratory individuals, and suitable stopover habitat, which includes agricultural land interspersed with wetlands, is largely absent from the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). However, transient individuals may forage in agricultural land within the Lease Boundary. Permanent disturbance from the Project would result in the direct loss of 489 acres of agricultural land.

Sandhill cranes have the highest mean use of the special status bird species observed during field surveys for the Project. The exposure index for sandhill cranes under Option 1 is approximately eight times less than under Option 2 (GAL 2022 [**Appendix 4.6-1**]; Horse Heaven Wind Farm, LLC 2022). Few post-construction studies have documented mortalities of sandhill crane at wind farm facilities; one was documented in the Altamont Pass Wind Resource Area in California, and two at wind facilities in west Texas (Horse Heaven Wind Farm, LLC 2022). No fatalities of sandhill crane have been documented at the adjacent Nine Canyon Wind Farm (Horse Heaven Wind Farm, LLC 2022). Sandhill cranes may not be particularly susceptible to risk of collision with turbines. Studies at wind facilities in other parts of the United States have shown that sandhill cranes are likely to avoid turbines despite relatively high numbers being observed within and surrounding wind facilities (Nagy et al. 2012; Pearse et al. 2016).

Sandhill cranes could collide with other Project infrastructure, such as solar arrays, towers, and buildings However, as sandhill cranes have not been reported using habitat or landing in the Lease Boundary they are expected to be less likely to collide with ground-based facilities.

The Central Valley sandhill crane population, which is predominantly composed of greater sandhill crane (*A. c. tabida*), appears to be increasing (WDFW 2022). Systematic surveys and population trend analysis is not available for the Pacific flyway population, which is predominantly composed of lesser (*A. c. canadensis*) and

Canadian (*A. c. rowani*) sandhill cranes (Gerber et al. 2020). The Project does not provide unique habitat, and although sandhill cranes were documented flying over the Lease Boundary, the species may be able to avoid turbines. Therefore, it is expected that sandhill cranes may be resilient to Project impacts.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a negligible impact on sandhill cranes that is long term and unavoidable for habitat loss and short term and feasible for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During the operation of turbines (Options 1 and 2) and comprehensive Project, impacts are predicted to have a medium-magnitude, long term impact on sandhill cranes that may feasibly occur within the Project Lease Boundary (confined). Operation of the solar arrays, BESS, and substations is predicted to have a negligible, long term impact on sandhill cranes that is unavoidable and confined to the Project Lease Boundary. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Tundra Swan

Tundra swans (*Cygnus columbianus*) were documented in the Lease Boundary during surveys completed for the Project (Horse Heaven Wind Farm, LLC 2022). Suitable habitat for tundra swans within the Lease Boundary includes agricultural land, where they may forage on available grain following harvest. Permanent disturbance of approximately 489 acres of agricultural land would occur from Project construction (Horse Heaven Wind Farm, LLC 2022).

In addition, Project operations could cause indirect impacts on tundra swans. Avoidance of suitable habitat in proximity to wind turbines may alter tundra swans' use of the Lease Boundary. A review of the response of swans and geese to wind turbines found displacement distances of approximately 656 to 1,837 feet (200 to 560 meters) for swans at onshore facilities, and 98 to 1,969 feet (30 to 600 meters) for geese (Rees 2012). Approximately 39,169 acres of agricultural land may be disturbed by the Project.

Exposure indices for tundra swans are 0.011 for Option 1 and zero at all other turbine technologies. Because Option 1 would also require a greater number of turbines than Option 2, it is expected to result in greater collision risk for tundra swans. No fatalities of tundra swans have been documented at wind facilities in Washington (Horse Heaven Wind Farm, LLC 2022). Swans and geese may exhibit avoidance of wind turbines, given the high number of observations at wind facilities and low incidence of collision mortality (Rees 2012). Avoidance behavior can result in increased energetic costs for migrating swans, which can vary depending on the proximity of the disturbance to breeding and foraging areas (Rees 2012).

Mortality of water-associated birds, such as tundra swans, may occur if birds attempt to land on solar arrays. Tundra swans flying over the Lease Boundary could perceive solar arrays as waterbodies (lake effect).

Tundra swan populations throughout North America are predicted to be increasing; however, the western populations are estimated to be declining approximately 2.3 percent per year (Limpert et al. 2020). The Project may reduce the amount of foraging habitat for tundra swans; however, it is expected that tundra swans may avoid the Lease Boundary during Project operation. As such, tundra swans are expected to be moderately resilient to Project-related impacts.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a low-magnitude impact on tundra swans that is long term and unavoidable for habitat loss and short term and feasible for disturbance and mortality. Construction impacts are expected to be

confined to the Project Lease Boundary. During operation under Turbine Option 1 and the comprehensive Project, impacts are predicted to be low magnitude, long term, and may feasibly occur within the Project Lease Boundary (confined). Operation under Turbine Option 2 is predicted to have a negligible impact on tundra swans that is long term, feasible, and confined to the Project Lease Boundary. Operation of the solar arrays is predicted to have a low-magnitude, long term impact on tundra swans that may feasibly occur within the Project Lease Boundary (confined). Operation of the BESS and substations is predicted to have a negligible, long term, unavoidable impact that is limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Vaux's Swift

Vaux's swifts (*Chaetura vauxi)* were not documented during field surveys conducted by the Applicant within the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). Suitable breeding habitat for this species includes coniferous or mixed forest, with a preference for old-growth forest (Schwitters et al. 2021). Vaux's swifts roost in nest trees during the breeding season and often use chimneys for roosting during migration (Schwitters et al. 2021). Suitable nesting and roosting habitat does not occur within the Lease Boundary, though Vaux's swifts may migrate over the Lease Boundary. The Project is not anticipated to directly or indirectly impact habitat for Vaux's swifts, though Project operation could disturb migrating Vaux's swifts.

Five fatalities of Vaux's swift were documented at 196 surveyed wind facilities in the United States between 2002 and 2018 (AWWI 2020). Flocking birds, such as Vaux's swifts, may be more susceptible to strikes during migration (Román et al. 2020). The Project is not anticipated to cause mortality of Vaux's swifts, given their low occurrence in the Lease Boundary, lack of suitable nesting and roosting habitat, and low incidence of collisions at other wind farm facilities.

Construction of the Project construction (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a negligible impact on Vaux's swift that is short term and unlikely to occur within the Project Lease Boundary (confined). During the operation of the turbines (Options 1 and 2) and the comprehensive Project, impacts are predicted to be low magnitude and long term and may feasibly occur within the Project Lease Boundary (confined). Operation of the solar arrays, BESS, and substations is predicted to have a negligible, long-term impact on Vaux's swifts that is unlikely to occur within the Project Lease Boundary (confined). Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, unlikely, and confined.

Black-tailed Jackrabbit and White-tailed Jackrabbit

The Lease Boundary has been mapped as suitable habitat for black-tailed jackrabbits (*Lepus californicus*) based on predictive mapping provided by the Applicant, while suitable white-tailed jackrabbit (*Lepus townsendii*) habitat is generally patchy across the Lease Boundary (Horse Heaven Wind Farm, LLC 2021c). The Applicant notes that these species are rare in the Lease Boundary (Horse Heaven Wind Farm, LLC 2022). PHS data report five occurrences of black-tailed jackrabbit within 2 miles of the Lease Boundary (WDFW n.d.). Although the species are regionally rare, the Lease Boundary provides suitable habitat, and the Project is predicted to result in the direct loss of approximately 102 acres of shrub and grassland habitat that could support these species. The Project is predicted to result in the temporary loss of 601 acres of suitable habitat and modification of 1,019 acres of potentially suitable habitat. The response of small mammals to wind turbines is not well studied (Arnett et al. 2007), although, in their assessment of response to wind facilities in an agricultural setting, Łopucki et al. (2017) noted that European hares (*Lepus europaeus*) appeared to avoid turbines and the surrounding 0.44 miles (700 meters). WHCWG (2012) notes that wind power projects generally result in limited direct habitat loss;

however, associated road and transmission line infrastructure can alter the suitability of habitat. The ZOI applied for the Project is expected to include indirect black-tailed and white-tailed jackrabbit habitat loss. Therefore, approximately 13,260 acres of suitable habitat (grassland and shrub) may be indirectly lost or disturbed due to Project operation.

Solar arrays may provide novel shelter for jackrabbits that reduces predation by aerial predators (e.g., raptors). Vegetation would be maintained under the solar arrays, which may attract jackrabbits, depending on ground conditions.

Sources of potential black-tailed and white-tailed jackrabbit mortalities are expected to include interaction with construction equipment and road-based mortalities during operation. Jackrabbits are vulnerable to road mortality (WHCWG 2012), although the risk of mortality is linked to traffic volumes and speeds. Limited Project-related traffic is predicted during the Operation Stage of the Project, reducing potential risk of mortality for jackrabbits. In addition, transmission poles can increase the availability of perch sites for raptors, increasing predation pressure on jackrabbits (WHCWG 2012).

New access roads that create linear disturbances across the landscape would potentially fragment remaining jackrabbit habitat, particularly where roads bisect shrub and grassland habitats. Roads are listed as a major connectivity threat to jackrabbits by creating barriers to limit access to shrub and grassland habitats (WHCWG 2012).

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a low-magnitude impact on black-tailed and white-tailed jackrabbits that is constant and unavoidable for habitat loss and short term and probable for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During the operation of the turbines (Options 1 and 2) and the comprehensive Project, impacts are predicted to be medium magnitude, constant, and unavoidable within the Project Lease Boundary (confined). Operation of the solar arrays is predicted to have a low-magnitude, constant impact that is feasible within the Project Lease Boundary. Operation of the BESS and substations is predicted to have a negligible, long-term, and unavoidable impact that is limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Townsend's Big-eared Bat

Townsend's big-eared bats (*Corynorhinus townsendii*) were not recorded during bat acoustic surveys conducted by the Applicant for the Project (Horse Heaven Wind Farm, LLC 2022). Suitable habitat for this species is minimal within the Lease Boundary due to the absence of roosting and hibernacula sites (Horse Heaven Wind Farm, LLC 2022). Townsend's big-eared bats may travel up to approximately 6.5 miles (10.5 kilometers) from roost sites to forage (Gruver and Keinath 2006). Foraging occurs in a variety of habitat, including riparian areas, forests and edge habitats, woodlands, and sagebrush shrub-steppe; however, foraging areas may be selected based on proximity to available roosting sites (Gruver and Keinath 2006). Suitable foraging habitat could exist over the Lease Boundary in shrubland, but it is uncertain whether roosting sites exist in the surrounding landscape. Townsend's big-eared bats have not been documented in the southern Columbia Basin (WDFW 2022).

Bat fatality studies at the adjacent Nine Canyon Wind Farm documented 27 bat fatalities of the silver-haired bat (*Lasionycteris noctivagans*) and hoary bat (*Lasiurus cinereus*) species, but no Townsend's big-eared bat fatalities (Erickson et al. 2003). Bat fatalities were estimated to be approximately 3.21 bats per turbine per year (Erickson et al. 2003). Limited information on fatalities of Townsend's big-eared bats at wind facilities is available. As

suitable roosting habitat does not occur in the Lease Boundary, and since the species was not detected during the surveys, Project operation is anticipated to have limited impact on Townsend's big-eared bat mortality.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a negligible impact on Townsend's big-eared bat that is short term, feasible, and confined to the Project Lease Boundary. During operation of the turbines (Options 1 and 2) and the comprehensive Project, impacts are predicted to be low magnitude, long term, and probable within the Project Lease Boundary (confined). Operation of the solar arrays is predicted to have a low-magnitude, long-term impact that is unlikely to occur within the Project Lease Boundary (confined). Operation of the BESS and substations is predicted to have a negligible, long-term, and unlikely impact that is limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, unlikely, and confined.

Townsend's Ground Squirrel

The Lease Boundary overlaps Townsend's ground squirrel (*Urocitellus townsendii*) habitat concentration areas (HCAs), as well as mapped predicted core Townsend's ground squirrel habitat (NatureMapping n.d.). Grassland and shrub-steppe habitats within the Lease Boundary are expected to provide suitable habitat, while other habitats, such as agricultural fields and roadsides, could provide marginal habitat. The Applicant estimates that six turbines may be sited in HCAs modeled as medium concentration. The eastern solar array also overlaps a medium-concentration HCA. PHS data report nine occurrences of Townsend's ground squirrels within 2 miles of the Lease Boundary (WDFW n.d.). The Applicant predicts that the Project would result in the loss of approximately 1,554 acres of suitable Townsend's ground squirrel habitat. It is estimated that the Project may result in a loss of approximately 102 acres of grassland and shrub-steppe habitat that could provide potentially suitable Townsend's ground squirrel habitat, as well as temporary loss and modification of 601 acres and 1,019 acres, respectively, of potentially suitable habitat. The Project would also impact one of the two Townsend's ground squirrel colonies in the Lease Boundary, which is located within the temporary disturbance footprint. This would result in a loss of denning habitat for the species.

There is limited information on the response of small mammals, including Townsend's ground squirrel, to wind power projects. California ground squirrels (*Spermophilus beecheyi*) near the Altamont Pass Wind Resource Area are reported to show greater levels of predator vigilance and returned to burrows more frequently when located closer to turbines (Rabin et al. 2006). Łopucki et al. (2018) reported that common voles display a physiological response (increased corticosterone concentrations, indicating stress response) in individuals living closer to turbines, although they also reported that a similar response was not observed in striped field mice. Łopucki et al. (2018) postulate that striped field mice have more behavioral plasticity and commonly live near humans, suggesting that some species may be adaptable to wind power disturbances. It is unknown whether disturbance from wind turbines would result in long term effects on local Townsend's ground squirrel populations, although observations from the Stateline Wind Farm suggest that ground squirrel populations have remained stable post-construction (WHCWG 2012). It is expected that the ZOI developed for the Project is sufficiently conservative to capture Townsend's ground squirrel habitat that may be indirectly impacted by the Project.

Solar arrays may provide novel shelter for Townsend's ground squirrels that reduces predation by aerial predators (e.g., raptors). Vegetation would be maintained under solar arrays, which could attract Townsend's ground squirrels to these locations, depending on ground conditions.

Potential sources of Project-related ground squirrel mortalities include collisions with construction equipment, fatalities during ground-disturbing activities near colonies, and road-based mortalities during construction and operation. Risk of mortalities is expected to increase during construction activities near colonies. The Applicant reports that two known colonies of Townsend's ground squirrels occur within the Lease Boundary, one of which would be directly disturbed by the Project. Risk of Townsend's ground squirrel mortalities is expected to be highest during work near active colonies. While two colonies are known to occur within the Lease Boundary, species-specific surveys were not conducted; therefore, there is potential for additional colonies to be present. Townsend's ground squirrels may also live near roads bordered by natural vegetation and are vulnerable to mortality during road crossings. The Project is expected to generate low traffic volumes during the Operation Stage, which would be a limited risk to ground squirrels. New transmission poles would increase available raptor perching habitat, potentially increasing predation pressures near these features. The Project is not expected to require the use of rodenticides or pesticides that could be consumed by ground squirrels.

New access roads, particularly in grassland, shrub land, and more complex agricultural fields, may further fragment Townsend's ground squirrel habitat. Ground squirrels have been observed crossing smaller roads (WHCWG 2012); therefore, it is expected that minor access roads constructed for Project use would not create substantial barriers to movement.

Townsend's ground squirrel population and population trends in Washington State are unknown (WDFW 2022), though Hammerson and Canning (2022) estimate that the population may have declined more than 70 percent as the species is absent from much of its former range, with 10 percent of natural habitat remaining within the historical range. As the species is able to persist in some built infrastructure areas, it is expected that the population has moderate resilience to disturbance, but may have low resiliency to loss or damage of remaining colonies.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, and substations) is predicted to have a medium impact on Townsend's ground squirrels that is constant and unavoidable for habitat loss and short term and probable for disturbance and mortality. Construction impacts are expected to be confined to the Project Lease Boundary. During operation of the turbines (Options 1 and 2), solar arrays, and comprehensive Project, impacts are predicted to be medium magnitude, constant, and feasible within the Project Lease Boundary (confined). Operation of the BESS and substations is predicted to have a negligible, constant, and feasible impact that is limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

Pronghorn Antelope

Pronghorn antelopes have been re-introduced to Washington State by the Yakama Nation. While not a special status species, it is understood that the species is important for the Yakama Nation. Pronghorn antelopes were re-introduced onto the Yakama Reservation, located west of the Lease Boundary, but have since moved into adjacent areas (Fidorra et al. 2019). Winter surveys documented pronghorn antelope occurrence in the western portion of the Lease Boundary (Tetra Tech 2021). Fidorra and Peterson (2021) report groups of pronghorn antelope varying in size (1 to 24 individuals) in the western, central, and eastern parts of the Lease Boundary. The Project is predicted to result in the loss of approximately 51 acres of shrub, 51 acres of grassland, and 489 acres of agricultural land that could be used by pronghorn antelopes. Fencing around solar arrays is expected to limit pronghorn antelope access to habitat around solar arrays.

Research on pronghorn antelopes' response to wind power projects reports variable results. Smith et al. (2020) found that female pronghorns avoided wind turbines in their winter range, whereas the Applicant notes that other studies have reported inconsistent responses by pronghorn antelopes to wind power projects (Tetra Tech 2021). Landon et al. (2000) reported that pronghorn antelopes generally preferred areas with lower noise levels (<45 decibels). Based on the available information, it is reasonable to expect that pronghorn antelopes may avoid Project construction activities and, potentially, operational activities (Tetra Tech 2021). It is expected that the ZOI selected for the Project (0.5 miles) would sufficiently encompass habitat indirectly lost as a result of Project-related disturbance.

The Applicant reports road-related mortalities and entanglement with barbed wire fence as potential sources of direct pronghorn antelope mortality (Horse Heaven Wind Farm, LLC 2022a). Increased road density due to the Project would increase the risk of road-related mortality, though Project-related traffic is predicted to be low. Fencing around solar arrays would include a 6-foot-high security fence; however, would not include barbed wire, as per the Applicant commitments, as such Project-related fencing is not expected to pose a potential risk of pronghorn antelopes' mortality. Alteration in access to, or disturbance of, suitable wintering and foraging habitat could lead to reduced pronghorn antelope survivorship or fecundity. There is insufficient information on habitat use by the re-introduced herd within the Lease Boundary to understand if the required extent of seasonal pronghorn habitat is provided by available habitat within the Lease Boundary.

Data provided by Yakama Nation and data presented in Fidorra and Peterson (2021) suggest that pronghorn antelope move through steppe-shrub and dryland crops along the Horse Heaven Hills ridge. If Project operations deter pronghorn antelope habitat use or movement, the Project could create a barrier to west-east movement. Data presented by Yakama Nation suggests that regionally occurring groups of pronghorn antelope may avoid canyons and irrigated agricultural areas (Yakama Nation, n.d.).. If pronghorn antelope avoid the Project during operation this new barrier could act cumulatively with avoidance of canyons and irrigated agricultural areas to restrict pronghorn movement. However, there is insufficient information on the movement patterns of the re-introduced herd to understand how, or if, the Project may influence movement.

Construction of the Project (Turbine Options 1 and 2, solar arrays, BESS, substations, and comprehensive Project) is predicted to have a medium-magnitude impact on pronghorn antelope that is constant and unavoidable for habitat loss and short term and probable for disturbance. Construction impacts are expected to be confined to the Project Lease Boundary. During the operation of the turbines (Options 1 and 2) and the comprehensive Project, impacts are predicted to be medium-magnitude, constant, and unavoidable within the Project Lease Boundary (confined). Operation of the solar arrays is predicted to result in medium-magnitude, constant, unavoidable impacts within the Project Lease Boundary (confined), while operation of the BESS and substations is predicted to have a negligible, long-term, and unavoidable impact that is limited in extent. Impacts from decommissioning for all components and the comprehensive Project are predicted to be negligible, short term, feasible, and confined.

4.6.2.5 Recommended Mitigation Measures

This section describes the measures that would reduce or compensate for impacts related to wildlife and habitat from construction, operation, and decommissioning of the Project. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Project.

EFSEC has identified the following mitigation measures for the Project to avoid and/or minimize potential impacts on wildlife and habitat.

Wild-1:[34] Post-construction bird and bat fatality monitoring and management.

Post-construction bird and bat fatality monitoring program

Prior to initiation of operation, the Applicant would develop, in coordination with the Technical Advisory Committee (TAC) and approval by EFSEC, a post-construction bird and bat fatality monitoring program. Monitoring would be conducted for a minimum of three years. While the three years of monitoring need not be consecutive, all post-construction monitoring would be conducted within the initial five years of operation to document variation in annual fatality rates. The program would describe survey methods, timing, and effort as described in the Applicant's Bird and Bat Conservation Strategy (Appendix M of the ASC). Surveys would include carcass surveys to document the longevity of carcass persistence and detectability of carcasses. Surveys would be conducted year-round to account for variation in bird and bat abundance and diversity. Additional surveys (e.g., survey frequency) would be conducted during sensitive periods for birds and bats (e.g., migration periods). Surveyed area would include turbines, solar arrays, and transmission lines at a minimum.

Bird and bat fatality adaptive management strategy development

Prior to initiation of operation, the Applicant would develop, in coordination with the TAC and approval by EFSEC, an adaptive management strategy. The adaptive management strategy would include additional mitigation measures to be applied during sensitive periods (e.g. migration) or if mortality thresholds are exceeded.

Migratory bat species are at risk of population level impacts due to wind power facilities and these species are most at risk of collisions with turbines during spring and fall migration. As such, adaptive management strategies will be applied during these sensitive periods, which are generally April to June (spring migration) and August to October (fall migration) (Hayes and Wiles 2013). Acoustic surveys during operation may be used to define a project-specific migratory period. Acoustic detectors may be deployed across the Lease Boundary prior to spring and fall migration to detect increased bat activity suggesting the onset of bat migration. These data would be used to adjust the generalized bat sensitive periods listed above. Similarly, acoustic data would be used to document the end of bat migration and when adaptive management strategies may no longer be required. Bat data would be downloaded and analyzed on a weekly basis to document the start and end of migration.

Adaptive management mitigation strategies that would be considered include altering the operation of the turbines by increasing the cut-in speed to above 18 feet (5.5 meters) per second (Alberta Government 2013) and curtailing turbines during known bird and bat migration period. As noted in in Section 4.6.2.2, projected impacts of wind power projects estimate that wind power could result in mortality levels of 3 to 46 percent of the hoary bat population by 2050. Friedenberg and Frick (2021) conclude that a 5 m/s curtailment could avoid hoary bat extinction in several of the modeled scenarios. Acoustic monitors and smart curtailment may also be included in adaptive management to refine data on bat presence near turbines and when curtailment mitigation should be implemented. Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring.

[34] Wild-: Identifier of numbered mitigation item for Wildlife

Bird and bat fatality adaptive management review

The Applicant, the TAC, EFSEC, and WDFW would review the results of the bird and bat post-construction fatality monitoring program after each monitoring period to determine whether the mitigation measures outlined in the adaptive management strategy should be revised or adjusted. The data would also be used to determine whether monitoring efforts are sufficient to verify predicted impacts on birds and bats. EFSEC may require the Applicant to conduct more intensive surveys (e.g., additional spatial extent or frequency) or extend the duration of post-construction monitoring beyond the minimum three years. The Adaptive management mitigation strategies should be periodically reviewed (minimum of every five years) with the TAC during operation to consider inclusion of new science and technologies that may more efficiently reduce bird and bat fatalities.

Rationale: This mitigation allows for continued monitoring and adaptive management of potential Project-related wildlife mortalities.

Wild-2: All trash containers would be wildlife-resistant.

Rationale: This mitigation measure reduces potential human-wildlife conflicts, thereby reducing potential Project-related wildlife mortalities.

Wild-3: The Applicant would provide EFSEC a summary of the consultation undertaken with the USFWS regarding eagle mortality.

Rationale: This mitigation measure allows for continued monitoring and adaptive management of potential Project-related impacts on eagles.

Wild-4: The Applicant would avoid the use of pesticides, including rodenticides, during Project construction and operation. If pesticides are required, the Applicant would, prior to application of the pesticides, develop a management plan for submission to and approval by EFSEC that describes how the Applicant would avoid and/or otherwise minimize potential impacts on wildlife, including all potentially impacted special status species.

Rationale: This mitigation measure reduces potential impacts on habitat and wildlife mortality while allowing for adaptive management of potential Project-related impacts.

Wild-5: The Applicant would limit construction disturbance by identifying sensitive areas on mapping and flagging in the field exclusion zones around any sensitive areas, including wildlife features, such as wildlife colonies, active nests, dens, and wetlands. Encroachment into exclusion zones required during construction would be reviewed by the Applicant's biologist to determine the impacts on the feature and recommend additional measures to manage impacts to the resource. The Applicant would provide information on where encroachment would be required, the rationale for encroachment, and additional mitigation measures for EFSEC to review prior to implementation. The Applicant would conduct ongoing environmental monitoring during construction to ensure that flagged exclusion zones are avoided.

Rationale: This mitigation measure reduces potential loss of habitat and wildlife mortality.

Wild-6: The Applicant would maintain a database of road mortalities throughout construction and operation as part of the operational procedures. The Applicant would review road-based mortalities annually and propose additional mitigation for areas, under the control of the Applicant, with frequent mortalities or wildlife crossing

observations. Additional mitigation measures may include speed control, signage, temporary road closures (e.g., during migration periods), or wildlife passageways and would be reviewed and approved by EFSEC prior to implementation.

Rationale: This mitigation measure allows for continued monitoring and adaptive management of potential Project-related wildlife mortalities.

Wild-7: The Applicant would schedule construction activities to occur during daylight hours, when feasible, to reduce disturbance of nocturnal species and the need for nighttime lighting.

Rationale: This mitigation measure reduces disturbance to wildlife (i.e., indirect loss).

Wild-8: Wind turbine buffer zones would be established around all known raptor nests and be a minimum of 0.25 miles. The Applicant would prepare a Raptor Nest Monitoring and Management Plan for review by EFSEC and the PTAG if buffer zones cannot be maintained.

Rationale: This mitigation measure reduces potential impacts on habitat and raptor mortality while allowing allow for adaptive management of potential Project-related impacts.

Wild-9: Vegetation clearing and grubbing would avoid local bird breeding periods, when feasible, to reduce potential destruction or disturbance of nesting birds. If avoidance of this period is not feasible, additional mitigation measures, such as pre-construction surveys for and buffering of active bird nests, would be undertaken.

Rationale: This mitigation measure avoids or reduces potential bird mortality.

Hab-1:[35] The Applicant would locate Project components, including roads and powerlines, outside of movement corridors modeled in WWCWG (2013) as medium to very high linkage, to the extent feasible. The Applicant would provide rationale to EFSEC for siting components within movement corridors, and a Corridor Mitigation Plan would be required that describes:

- Extent of direct and indirect habitat impact within the movement corridor
- Proposed measures to be implemented to reduce potential impacts on movement corridors (e.g., habitat enhancements to promote continued use of corridors)
- Proposed features (e.g., open-bottom culverts) to accommodate wildlife movement for linear Project components (e.g., roads, powerlines)
- Proposed restoration in movement corridors following Project decommissioning
- Performance standards to assess the effectiveness of mitigation measures and restoration
- Methods to monitor and measure performance standards

The Corridor Mitigation Plan would be developed in consultation with the PTAG and reviewed and approved by EFSEC prior to implementation. Results of corridor monitoring would be reviewed annually with the TAC

[35] Hab-: Identifier of numbered mitigation item for Habitat

to evaluate the effectiveness and apply additional measures if necessary. Data would be provided to EFSEC with additional mitigation measures for review and approval prior to implementation.

Rationale: This mitigation measure reduces potential Project-related barriers to wildlife movement while allowing for continued monitoring and adaptive management of potential Project-related barriers.

Hab-2: Transmission line crossings of canyons and draws would be minimized. Where crossings are required, the Applicant would provide EFSEC with rationale for the crossings and propose additional mitigation measures to reduce potential barriers to movement (e.g., retaining vegetation under transmission lines) and wildlife collisions (e.g., installing flight diverters on overhead lines). EFSEC would approve the final transmission line layout, mitigation, and adaptive management strategy.

Rationale: This mitigation measure reduces potential Project-related barriers to wildlife movement while allowing for continued monitoring and adaptive management of potential Project-related barriers.

Hab-3: Temporary laydown areas. Temporary laydown areas would be situated out of native shrub-steppe habitat. Where temporary disturbance of shrub-steppe habitat is required, the Applicant would provide EFSEC with rationale and propose additional mitigation measures to reduce habitat loss.

Rationale: This mitigation measure avoids and reduces impacts on habitat while allowing for adaptive management of potential Project-related habitat loss.

Hab-4: The Applicant, in consultation with EFSEC, would establish a Pre-operational Technical Advisory Group (PTAG) and Technical Advisory Committee (TAC). The PTAG would be established at least one year prior to construction and would be responsible for reviewing and providing technical advice on documents produced by the Applicant related to wildlife and wildlife habitat. The PTAG would also provide advice on adaptive management. The PTAG would be responsible for, at a minimum:

- Reviewing and providing technical advice on Project wildlife and habitat management plans (e.g., ferruginous hawk management plan)
- Reviewing and providing advice to EFSEC on pre-design and pre-construction data collection requirements to address Project mitigation measures and conditions of management plans
- Reviewing and providing advice to EFSEC on the final Project design
- Advising on thresholds to be applied to the Project that would trigger the requirement for additional mitigation measures

The Applicant, in consultation with EFSEC, would establish a TAC prior to Project operation. The PTAG would cease to exist once the Applicant has completed all planned construction and would be replaced by the TAC, which would exist for the life of the Project. The TAC would be responsible for, at a minimum:

- Advising on the monitoring of mitigation effectiveness and reviewing monitoring reports
- Advising on additional or new mitigation measures that would be implemented by the Applicant to address exceedances of thresholds

- Reviewing the results of annual data generated from surveys and incidental observations and providing recommendations for alternative mitigation and adaptive management strategies, as well as advising on aspects of existing mitigation that are no longer needed.

The PTAG and TAC may include representation by WDFW, the Washington Department of Natural Resources, interested tribes, Benton County, and the USFWS. The PTAG and TAC may also include local interest groups, not-for-profit groups, and landowners. The exact composition of the PTAG and TAC would be determined through discussions between the Applicant and EFSEC and would depend on the relevance and/or availability of proposed members.

Rationale: This mitigation measure avoids and reduces impacts on wildlife and habitat, including habitat loss, wildlife disturbance, barriers to movement, and wildlife mortality. Further the mitigation measure will allow for continued monitoring and adaptive management of potential Project-related impacts.

Hab-5: As noted by the Applicant, the Project is expected to result in indirect habitat loss through loss of habitat function and changes in wildlife behavior in response to the Project. Further, as noted by the Applicant, WDFW guidelines require that compensatory habitat mitigation must fully offset the loss of habitat function and value. To address indirect habitat loss associated with the Project, the Applicant would develop an Indirect Habitat Loss Management Plan that addresses potential indirect habitat loss resulting from the Project. The Applicant would work with the PTAG during the development of the Indirect Habitat Loss Management Plan (IHLMP) for review and approval by EFSEC. EFSEC and the PTAG would review the IHLMP prior to its implementation. The IHLMP would be provided to the PTAG for review 90 days prior to construction.

The objectives of the IHLMP would be to identify a Project-specific ZOI and required mitigation based on the Project-specific ZOI. The Project-specific ZOI would be developed based on Project conditions and may differ from the ZOI presented in the EIS. The IHLMP would include:

- A description of the study's purpose and objectives
- A description of methods to define Project-specific ZOIs (e.g., gradient analysis, nest density)
- A description of data requirements to establish Project-specific ZOIs and field programs that would be implemented (pre-construction and post-operation)
- A description of the duration of studies required to establish Project-specific ZOIs
- A description of criteria to be used to compensate for loss of habitat function and value
- An environmental effectiveness monitoring strategy of compensatory habitat to ensure that the habitat meets success criteria

The IHLMP would also include a series of compensatory site-selection criteria, developed in consultation with the PTAG. The selection criteria would be used to evaluate candidate habitat compensation habitats. Habitats that achieve more of the criteria would be identified as the preferential sites. Selection criteria would include, at a minimum:

- Proximity to the Lease Boundary (e.g., hierarchy of preferences with respect to location—within the Lease Boundary being the highest priority, adjacent to the Lease Boundary being the second highest priority, and off site being the third priority)

- Protection of existing native shrub-steppe or grassland habitats
- Encompassing sensitive or important wildlife habitat (e.g., mapped movement corridors, ferruginous hawk core habitat, HCAs, areas of high prey abundance)
- Proximity to Project infrastructure

Rationale: This mitigation measure avoids and reduces disturbance to wildlife (indirect habitat loss) while allowing for ongoing monitoring, adaptive management, and offsetting of potential Project-related impacts.

Hab-6: Final Design: The Applicant would work with EFSEC, with advice from the PTAG, on the development of the final Project layout and design, including the application of Applicant commitments and recommended mitigation measures.

Rationale: This mitigation measure avoids and reduces potential habitat loss and disturbance to wildlife (indirect habitat loss).

Hab-7: All roadways constructed for the Project during the construction and operation phases would be removed and restored during decommissioning. The Applicant would provide EFSEC with rationale and propose additional mitigation measures if roadways are not decommissioned post-operation.

Rationale: This mitigation measure restores habitat post-operation and reduces habitat loss.

Hab-8: The Applicant would be required to provide compensation habitat loss and alteration (indirect habitat loss) (See Hab-5, Veg-4) through one or more actions of land acquisition, onsite easement and restoration (excluding areas impacted by the Project such as temporary laydowns), and/or fee-based mitigation.

The Applicant would prioritize development of conservation easements (Option 1[36] in the Applicant's Draft Wildlife and Habitat Mitigation Plan) and would compensate for the remaining permanent and altered (indirect) impacts by providing money to WDFW, or a third party identified by WDFW, and agreed to by EFSEC, to purchase other lands suitable as in-kind and/or enhancement mitigation. The Applicant would provide EFSEC, for review and approval, with rationale for fee-based mitigation (Options 2 and 3 in the Applicant's Draft Wildlife and Habitat Mitigation Plan) including a description of how much compensatory habitat would be addressed through Option 1 (conservation easement) and rationale for why fee-based mitigation is required.

The fee-based mitigation includes a per acre fee that would be determined by market rates and land sales within the general vicinity of the Lease Boundary for lands containing comparable habitat types and quality present within the Lease Boundary. The per acre fee would be developed by the Applicant in consultation with WDFW and approved by EFSEC. The Total Financial Obligation (TFO) would be determined by multiplying the cost per acre by the total Compensatory Mitigation Acres (CMA) remaining after the application of Option 1 mitigation strategy and would include a one-time 15 percent premium to cover administration and management costs for the purchased lands. The TFO for compensatory mitigation would be determined and agreed to by EFSEC 90 days before construction. If construction has not begun within 12

[36] Applicant's Draft Wildlife and Habitat Mitigation Plan identifies three compensation options: Option 1 – Conservation easement within or adjacent to the Lease Boundary; Option 2 – Annual fee or lump sum payment provided to WDFW; Option 3 – payment to local land trusts, conservation organizations, or local tribes to support conservation projects.

months of the approval of the TFO, the TFO identified would expire and be recalculated prior to beginning construction. The TFO would be calculated based on the following:

Average Comparable Land Sale Cost (per acre)(CMA-Option 1 Acres)*1.15 = TFO*

In addition to the wildlife and habitat mitigation measures, the following measures developed for the Vegetation chapter are applicable to wildlife and habitat.

Rationale: This mitigation measure clarifies the process to be followed in selection of offsetting habitat.

Veg-1:[37] **Tree Avoidance:** Construction would avoid removing or disturbing trees within the Project Lease Boundary. Disturbance to trees includes any disturbance, including topping, within the drip-line of the tree (i.e., the area from the edge of the outermost branches), which preserves an intact root system. Disturbance within the drip-line of the tree should be avoided as this can lead to tree mortality. The avoidance area within the drip-line of trees in work areas should be delineated using snow fencing or a similar measure to improve the visibility of avoidance zones. Trees cannot be disturbed or removed without pre-approval. Where disturbance of trees by the Project cannot be avoided (e.g., near transmission lines), the number and location of the trees would be provided to EFSEC, along with a statement justifying why avoidance cannot be achieved, and a mitigation plan. The mitigation plan would include replanting trees within the Lease Boundary to maintain the diversity of habitat structures provided by trees and would require approval by EFSEC prior to proceeding. The mitigation measure avoids physical disturbance to trees, which provides structural diversity for wildlife habitat.

Veg-4: As-Built Report and Offset Calculation: Within 60 days of completing construction, the Applicant would provide an as-built report that documents the amount of temporary and permanent disturbance associated with the Project. This would include associated maps and georeferenced spatial files. The as-built report would be factored into the final calculation of habitat offset based on the Applicant-provided ratios. The acreages of modified habitat planted for the Project under the solar arrays would also be included in this report. EFSEC would determine the number of years that vegetation monitoring of temporary disturbance and modified habitat would be conducted and the success criteria for revegetation. The success criteria would include parameters that the Applicant would measure to determine whether successful revegetation has occurred.

The Applicant would submit annual reports for each year of vegetation monitoring following construction to document the success of revegetation. At the end of the vegetation monitoring period, as determined by EFSEC, areas of modified habitat and revegetated temporary disturbance that have met the success criteria would be eligible for offset by the Applicant at the respective ratios. Any areas of modified habitat or temporary disturbance that do not meet the success criteria after completion of revegetation monitoring would be considered permanent disturbance, and this would be added to the offset requirement.

Rationale: This mitigation measure addresses habitat offset by requiring a final calculation of offset requirements based on actual disturbance.

Veg-7: Detailed Site Restoration Plan: The Detailed Site Restoration Plan is a required, regulatory document. It would be prepared and submitted for approval by EFSEC for final revegetation prior to Project

[37] Veg-: Identifier of numbered mitigation item for Vegetation, as described in Section 4.5

decommissioning for the temporary and permanent disturbance areas. It would be adapted to include modified habitat.

Rationale: The Detailed Site Restoration Plan would be a living document. It would include the methods, success criteria, monitoring, and reporting for revegetation at the end of the Project life. It would also include provisions for adaptive management and would be prepared based on any lessons learned from implementing the revegetation planned for the temporary disturbance from Project construction as described in Appendix N of the 2022 ASC (Appendix N, Horse Heave Wind Farm, LLC 2022)..

Recommended Mitigation Measures for Special Status Species

Table 4.6-9 summarizes the mitigation measures recommended by EFSEC that are specific to special status species. These measures, in combination with those described above, would reduce potential Project-related impacts on these species.

Table 4.6-9: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-1[38]	Striped whipsnake Sagebrush lizard	The Applicant would conduct pre-construction surveys for sensitive reptile species prior to alteration or destruction of suitable habitat, such as areas within the Lease Boundary identified as core habitat in GAP mapping, as well as shrubland (e.g., shrub-steppe, rabbitbrush). WDFW would be contacted prior to undertaking these surveys. If these species are identified through pre-construction surveys, the Applicant would prepare a Reptile Management Plan to reduce potential impacts on habitat, mortality, and barriers to movement. The Reptile Management Plan would describe: ▪ How the Applicant would avoid suitable habitat, including where the species were observed ▪ How the Applicant would implement management recommendations in Larsen (1997) ▪ How the Applicant would maintain rodent burrows in suitable reptile habitat (e.g., shrub-steppe) ▪ Additional mitigation measures to reduce potential mortality of these species during the Construction and Operation Stages of the Project The Reptile Management Plan would be reviewed by the PTAG and approved by EFSEC prior to initiation of construction. Survey results and proposed adaptive management would be reviewed by the PTAG and approved by EFSEC prior to implementation (see Hab-4). **Rationale:** This mitigation measure avoids and reduces potential striped whipsnake and sagebrush lizard habitat loss and mortality while allowing for adaptive management throughout Project construction and operation.
Spec-2	American white pelican	The Applicant would maintain a database of American white pelican observations within the Project Lease Boundary. Observational data would be reviewed with the TAC annually, and additional survey strategies would be applied as needed to inform adaptive management. **Rationale:** This mitigation measure allows for adaptive management of potential American white pelican mortality throughout Project operation.
Spec-3	Eagles	The Applicant would obtain any required federal approvals. The Applicant would continue ongoing coordination with the USFWS (Eagle Coordinator, Columbia Pacific Northwest Region) regarding an eagle take permit for incidental take of bald and golden eagles and would continue to evaluate eagle risk to determine if an eagle take permit is appropriate considering the use of the Project by bald and golden eagles. The Applicant would apply WDFW-recommended buffers for bald eagle and golden eagle nests (Larsen et al. 2004): ▪ Bald eagle protected zone (400 feet) and conditioned zone (up to 800 feet beyond the protected zone) ▪ Golden eagle – 1.9 miles **Rationale:** This mitigation measure avoids and reduces potential disturbance of eagle nests and eagle mortality.

[38] Spec-: Identifier of numbered mitigation item for Special Status Species, as described in Section 4.5

Table 4.6-9: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-4	Burrowing owl	The Applicant would conduct burrowing owl surveys within areas of direct loss (permanent, temporary, and modified) and associated ZOIs. The results of these surveys would be provided to the PTAG and EFSEC and used to inform the final Project layout. Active burrows would be retained, and satellite burrows with characteristics used by burrowing owls would be avoided where feasible to maintain habitat capacity. WDFW-recommended seasonal buffers (0.5 miles) would be applied around burrowing owl nests to avoid disturbing nesting burrowing owls, if present (Larsen et al. 2004). Seasonal buffers (February 15 to September 25) would be applied during construction and for temporary disturbances, such as periodic maintenance, during operation. If active burrowing owls are identified within the Lease Boundary, the Applicant would develop a species-specific management plan that describes: ▪ The location of active burrows ▪ How active burrows would be avoided through re-alignment or reconfiguration of Project features ▪ Additional mitigation measures that would be applied where disturbance to active burrows is expected (e.g., construction of artificial burrows) ▪ Additional mitigation measures that would be applied during operation if burrowing owl mortalities are recorded. ▪ How ongoing monitoring of active burrows would be undertaken The Burrowing Owl Management Plan would be reviewed by the PTAG and approved by EFSEC prior to initiation of construction. Survey results and proposed adaptive management would be reviewed by the PTAG and approved by EFSSEC prior to implementation (see Hab-4). The Applicant would monitor access roads for burrowing owl use and mortalities. Mortalities would be reported to the PTAG or TAC (depending on the Project phase) and EFSEC within 5 days of the observation. Incidental observations of burrowing owl use would be provided to the PTAG (construction) or TAC (operation) on an annual basis. **Rationale:** This mitigation measure avoids and reduces potential loss of burrowing owl habitat, disturbance to burrowing owls, and burrowing owl mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-5	Ferruginous hawk	The Applicant would avoid siting Project components within core habitat in ferruginous hawk territories, defined as the habitat within a 2-mile radius surrounding ferruginous hawk nests documented in PHS data and in Horse Heaven Wind Farm, LLC (2022). Siting of features within 2 miles of a known ferruginous hawk nest may be considered if the Applicant is able to demonstrate that the nest site and foraging habitat is no longer available to the species and that compensation habitat, as described below, would provide a net gain in ferruginous hawk habitat. Habitat considered no longer available for ferruginous hawk would include habitat that has been altered by landscape-scale development (cropland conversion, residential development, industrial development) rendering the territory non-viable. This could include habitats that have been altered such that no native or foraging habitat remains and no nesting structures exist. Project infrastructure would not be sited within 2 miles

Table 4.6-9: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
		of a ferruginous hawk nest without prior approval by EFSEC based on the process described below. The extent of encroachment into 2-mile core habitat may vary depending on the type of infrastructure proposed (e.g., turbine, power line, road). If encroachment is considered by the Applicant, the Applicant would provide the PTAG and EFSEC with: 1. A set of habitat parameters, developed in consultation with the PTAG for approval by EFSEC, to document whether habitat in a core range is consider non-viable. The results of habitat surveys would be reviewed by the PTAG and approved by EFSEC. 2. A description of the current nesting habitat available and a description of documented use of the core habitat by ferruginous hawk available through historic background information or field-based surveys. 3. A description of the type and location of infrastructure proposed within the core habitat. 4. The proximity of infrastructure to any known nest site or suitable foraging habitat. In the event that a Project component is proposed for siting within the 2-mile buffer, the Applicant would, in consultation with the PTAG for approval by EFSEC, develop a Project-specific ferruginous hawk mitigation and management plan: 1. A description of efforts to site Project infrastructure to avoid core habitat, identified as the area within 2 miles of nests documented in PHS data and Horse Heaven Wind Farm, LLC (2022): a. If Project components are sited within 2 miles of a ferruginous hawk nest, the infrastructure would be reviewed by the PTAG and approved by EFSEC. b. Additional mitigation measures would be developed to reduce potential ferruginous hawk strikes with turbines, including curtailing turbine operation within the 2-mile core habitat of any actively occupied nests during the breeding and rearing periods when ferruginous hawks are present in Benton County. c. The plan would explain how and where the Applicant would create offsetting habitat for direct and indirect habitat loss within the 2-mile core habitat of ferruginous hawk nests documented in PHS data and in Horse Heaven Wind, LLC (2022). 2. A description of when construction activities would be undertaken to avoid sensitive timing periods for ferruginous hawk. 3. A description of pre- and post-monitoring programs that would be conducted to establish: a. Habitat use within the Lease Boundary. b. Mapping of ground squirrel colonies and other prey items. c. Identification of potential flyways between nest sites and foraging habitat and monitoring of potential flyways to inform final turbine siting and orientation. d. Ongoing monitoring of nest use and territory success.

Table 4.6-9: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
		4. A description of restoration activities that would be undertaken in disturbed areas to enhance ferruginous hawk habitat during Project decommissioning. Results of ferruginous hawk monitoring programs and adaptive management would continue through Project operation and decommissioning with review by the TAC and approval by EFSEC. **Rationale:** This mitigation measure avoids and reduces potential loss of ferruginous hawk habitat, disturbance to ferruginous hawk, and ferruginous hawk mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-6	Great blue heron Sandhill crane Tundra swan	The Applicant would maintain a database of incidental observation of great blue heron, sandhill crane, and tundra swan foraging within the Lease Boundary during operation. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). The Applicant would reduce the use of overhead power lines, where possible. The Applicant would apply buffers recommended in Larsen et al. (2004)[(a)] for sandhill crane feeding areas (0.5 miles) and roosting areas (0.3 miles), if documented within the Lease Boundary. **Rationale:** This mitigation measure avoids and reduces potential disturbance and mortality of great blue heron, sandhill crane and tundra swan, while allowing for adaptive management throughout Project construction and operation.
Spec-7	Loggerhead shrike Sagebrush sparrow Sage thrasher Vaux's swift	The Applicant would maintain connectivity between natural habitat patches to reduce potential habitat loss and fragmentation. The Applicant would restore areas with shrubs, where feasible, to reduce potential habitat loss. The Applicant would avoid the use of insecticides and herbicides to reduce potential mortality and loss of prey items. The Applicant would retain trees, shrubs, and hedgerows, as feasible, to reduce habitat loss. The Applicant would consult with the PTAG and TAC and EFSEC if suitable habitat for loggerhead shrike, sagebrush sparrow, and sage thrasher cannot be avoided. If suitable habitat cannot be avoided, the Applicant would, in consultation with the PTAG for approval by EFSEC, develop nest setback buffers that are supported by literature to be applied during clearing and grubbing activities. The Applicant would avoid clearing and grubbing during the active nesting period to reduce potential destruction of active nests and disturbance of nesting birds. If clearing and grubbing occurs during the nesting season, the Applicant would conduct pre-clearing surveys for active nests and maintain appropriate setback buffers around active nests. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure avoids and reduces potential habitat loss, habitat fragmentation, and mortality to avoid and reduce impacts on loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift. The measure allows for adaptive management throughout Project construction and operation.

Table 4.6-9: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-8	Prairie falcon	The Applicant would conduct pre-construction surveys for prairie falcon nests for construction work proposed during the prairie falcon nesting season and maintain a seasonal buffer of 2,640 feet from active nest sites (Larsen et al. 2004) to reduce potential destruction or disturbance of active nests. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure avoids and reduces potential disturbance to prairie falcon, and prairie falcon mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-9	Ring-necked pheasant	The Applicant would consider using native grasses and legumes that support ring-necked pheasant in seed mixes applied during post-construction restoration of temporary disturbances and decommissioning to reduce potential habitat loss (Larsen et al. 2004). Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure reduces potential loss of ring-necked pheasant habitat and allows for adaptive management throughout Project construction and operation.
Spec-10	Black-tailed jackrabbit White-tailed jackrabbit	The Applicant would conduct surveys for jackrabbit in suitable habitat identified through GAP predictive mapping. If jackrabbits are identified, the Applicant would develop and implement a management plan with additional mitigation measures to reduce potential loss of habitat supporting jackrabbits. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure reduces potential loss of black-tailed and white-tailed jackrabbit habitat, indirect habitat loss, habitat fragmentation, and mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-11	Townsend's big-eared bat	The Applicant would restrict bat access to open water if the water could be contaminated. The Applicant would retain old buildings, outbuildings, and trees where feasible. The Applicant would report mortalities of Townsend's big-eared bat to EFSEC and the TAC. Bat mortality data and adaptive management strategies would be reviewed with the TAC annually (see Hab-4). **Rationale:** This mitigation measure reduces potential loss of Townsend's big-eared bat habitat and mortality and allows for adaptive management throughout Project construction and operation.

Table 4.6-9: Recommended Mitigation Measures for Special Status Species

Mitigation Identifier	Species Name	Species-specific Mitigation
Spec-12	Townsend's ground squirrel	The Applicant would conduct surveys for Townsend's ground squirrel colonies within the Lease Boundary in areas of the Project disturbance footprint (including ZOI) to inform final design. The Applicant would avoid habitat loss within Townsend's ground squirrel habitat concentration areas, as well as known colonies, in final design. Additional Townsend's ground squirrel colonies identified through surveys would be shown on Project mapping. If Project components are required in habitat concentration areas (rated as medium or greater) or near known colonies, the Applicant would prepare a species-specific management plan for areas where avoidance is not feasible. This plan would provide rationale for why colonies cannot be avoided and would detail additional mitigation measures to reduce impacts to Townsend's ground squirrel. Additional mitigation measures may include identification of setbacks, colony monitoring, habitat restoration, colony relocation, and reconstruction of habitat features. The plan would also describe monitoring and adaptive management measures to be implemented during Project operation. The plans would be provided and discussed with the PTAG, and approved by EFSEC, if avoidance of identified ground squirrel colonies is not feasible. Observational data and adaptive management strategies would be reviewed with the TAC annually. **Rationale:** This mitigation measure reduces potential loss of Townsend's ground squirrel habitat, disturbance of squirrel colonies, and Townsend's ground squirrel mortality, while allowing for adaptive management throughout Project construction and operation.
Spec-13	Pronghorn antelope	The Applicant would limit fencing where feasible (e.g., around solar arrays). Final fencing layouts and design, including use of non-barbed-wire security fencing, would be provided to the PTAG and EFSEC with rationale for fencing requirements. The Applicant would design and implement a study of seasonal pronghorn antelope occurrence and use of the Lease Boundary before construction and during operation to document the change, if any, of pronghorn antelope presence, abundance, and habitat use within the Lease Boundary. The PTAG would review and provide input to the study design. The results of the study would be used to develop adaptive management measures to respond to changes in pronghorn antelope habitat use. Survey results and proposed adaptive management would be reviewed by the TAC prior to implementation (see Hab-4). The Applicant would maintain a database of pronghorn antelope observations, including details such as numbers, location, age, and sex, and would make this database available to WDFW, EFSEC, and the Yakama Nation. **Rationale:** This mitigation measure reduces potential disturbance to pronghorn antelope and barriers to pronghorn antelope movement, while allowing for adaptive management throughout Project construction and operation.

Notes :
[(a)] Larsen et al. (2004) recommend buffers around great blue heron colonies, which do not occur within the Lease Boundary, and do not provide recommended buffers for tundra swan.
ASC = Application for Site Certification; EFSEC = Washington Energy Facility Site Evaluation Council; GAP = Gap Analysis Project; PHS = Priority Habitats and Species; PTAG = Pre-operational Technical Advisory Group; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife Service; WDFW = Washington Department of Fish and Wildlife; ZOI = zone of influence

Summary of Milestones and Timing

Table 4.6-10 summarizes wildlife and habitat mitigation milestones and the timing of when milestones would be met.

Table 4.6-10: Summary of Milestones

Timing	Mitigation Measure	Milestone	PTAG/TAC review
Construction			
One year prior to construction	**Hab-4**	Establishment of Pre-operational Technical Advisory Group (PTAG will be replaced by the Technical Advisory Committee upon the onset of operation).	NA
During appropriate season within 1 year prior to construction	**Spec-1, 4, 8, 10, 12**	Pre-construction surveys	PTAG
180 days prior to construction	**Hab-6**	Final design	PTAG
90 days prior to construction	**Hab-1**	Corridor Mitigation Plan, if necessary	PTAG/ TAC
90 days prior to construction	**Hab-2**	Rationale for and mitigation of canyon and draw crossings	NA
90 days prior to construction	**Wild-8**	Raptor Nest Monitoring and Management Plan	PTAG
90 days prior to construction	**Hab-5**	Indirect Habitat Loss Management Plan	PTAG
90 days prior to construction, if needed	**Spec-5**	Ferruginous hawk Mitigation and Management Plan	PTAG/TAC
60 days prior to initiation of surveys (pre-construction).	**Spec-13**	Pronghorn antelope seasonal study	PTAG/TAC
60 days prior to construction, if needed	**Spec-1, 4, 10, 12**	Species-specific management plans	PTAG/ TAC
Prior to construction	**Wild-5**	Flagging sensitive features and habitat	NA
Prior to construction	**Wild-9**	Pre-construction bird nest surveys, if necessary	NA
Operation			
60 days post-construction	**Veg-4**	As-built report and offset calculation	NA
Two years after commencement of operation	**Wild-1**	Review of post-construction fatality monitoring results	PTAG/ TAC
Annually during operation	**Wild-6**	Review mortality database and provide mitigation	NA
Annually during operation	**Spec-2, 4, 6, 7, 8, 9, 12**	Incidental databases	TAC
Annually during operation	**Spec-11**	Townsend’s big-eared bat mortality database	TAC

Timing	Mitigation Measure	Milestone	PTAG/TAC review
Decommissioning			
60 days prior to initiation of decommissioning	**Veg-7**	Detailed Site Restoration Plan	NA
60 days prior to initiation of decommissioning	**Hab-7**	Rationale for and mitigation of remaining roadways, if any	NA

4.6.2.6 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the expected changes that the Applicant was making to the Project in response to comments received on the EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include undergrounding of transmission lines where applicable

- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[39]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

A summary of the change in direct habitat loss associated with the updated East Solar Array based on the new fence alignment provided in the Applicant's response to Data Request 9 is provided under the Vegetation Chapter (Table 4.5-12). In general, the overall size of the solar arrays in the East Solar Siting Area has been reduced by approximately 1,355 ha; however, impacts to Priority Habitat remain similar as the original solar array design. The revised solar array fence alignment no longer overlaps areas rated as a moderate movement corridor by the Washington Wildlife Habitat Connectivity Working Group. As such, the magnitude rating for impacts to general wildlife barriers to movement from solar arrays during Project Operation has been reduced from Medium to Low.

The revised Applicant commitments also included removing 15 turbines previously sited in core ferruginous hawk territory (e.g., 3.2 miles from a documented nest). While this change reduces the loss of habitat in core ferruginous hawk range and reduces the risk of mortality, 116 turbines remain in core ferruginous hawk range, as such impact ratings for ferruginous hawk remain unchanged.

Considering the post-adjudication Applicant commitments and other changes provided in the 2022 ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remains. The additional Applicant commitments identified above do not change the impact ratings previously provided for wildlife and habitat in the Draft EIS, with the exception described above for barriers to general wildlife movement.

4.6.2.7 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn, depends on the magnitude and duration of an impact. "Significant" in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This EIS weighs the impacts on wildlife and habitat that may result from the Proposed Action with mitigation measures, and makes a resulting determination of significance for each impact in **Tables 4.6-11a, 4.6-11b, and 4.6-11c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to wildlife and habitat.

[39] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Habitat Loss	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The Project would result in the direct loss of habitat through construction of the Wind Energy Micrositing Corridor and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.	Medium	Short Term for temporary disturbances (e.g., construction laydown areas) Constant for permanent footprint loss (e.g., turbine footprint)	Unavoidable	Local	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance.	None identified
Habitat Loss	Solar Arrays	The Project would result in the direct loss of habitat, including modified habitat, through construction of the solar arrays and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.	Medium	Short Term for temporary disturbances (e.g., construction laydown areas) and modified habitat under the solar fields Constant for permanent footprint loss.	Unavoidable	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance.	None identified
Habitat Loss	BESS Substations	The Project would result in the direct loss of habitat through construction of the BESS, substations, and associated transportation routes. The Project may also result in indirect habitat loss through increased noise, light, and human presence during construction.	Low	Short Term for temporary disturbances (e.g., construction laydown areas) Long Term for permanent footprint loss.	Unavoidable	Limited	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Mortality of non-special status species	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works. Wildlife-vehicle collisions may occur during Project construction due to increased traffic.	Low	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified
Mortality of non-special status species	Solar Arrays	The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works. Wildlife-vehicle collisions may occur during Project construction due to increased traffic.	Low	Short Term	Feasible	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing to avoid nesting season and mitigation of nesting birds. **Hab-4:** Develop TAC.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Mortality of non-special status species	BESS Substations	The Project may result in mortality of smaller animals (e.g., birds, herptiles, small mammals) during clearing and ground preparation works. Wildlife-vehicle collisions may occur during Project construction due to increased traffic.	Negligible	Short Term	Feasible	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC.	None identified
Barriers to movement and fragmentation	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Turbines, power lines, roadways, and other linear infrastructure could create barriers to wildlife movement and fragment habitat. Barriers and fragmentation created during construction would predominantly remain through operation.	Low	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified
Barriers to movement and fragmentation	Solar Arrays	Solar arrays may impact wildlife movement and fragment habitat by bisecting movement corridors. Solar arrays would be fenced, which is expected to create a barrier to movement of larger wildlife around the arrays.	Low	Long Term	Unavoidable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Barriers to movement and fragmentation	BESS Substations	BESS and substations may create barriers to wildlife movement in the adjacent area.	Negligible	Long Term	Unavoidable	Limited	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified
Special status species: striped whipsnake and sagebrush lizard	Turbine Option 1 Turbine Option 2 Solar Array BESS Substations **Comprehensive Project**	Impacts on shrub and shrub-steppe habitat may result in loss of suitable reptile habitat. Mortality of reptile species could occur during construction from heavy machinery and land clearing and grubbing.	Low	Constant	Feasible	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-1:** Implement striped whipsnake and sagebrush lizard specific mitigation.	None identified
Special status species: American white pelican	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project may disturb American white pelicans moving over the Lease Boundary.	Negligible	Short Term	Unlikely	Limited	**Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-2:** Implement American white pelican specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: bald eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project could disturb bald eagles, resulting in avoidance of the Project Site.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction. disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-1:** Tree avoidance. **Spec-3:** Implement eagle specific mitigation.	None identified
Special status species: burrowing owl	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction may result in direct and indirect habitat loss and the destruction of burrows (active, inactive, and potential). Mortality may occur during vegetation and ground-disturbing works.	Medium	Constant (habitat loss) Short Term (disturbance, mortality)	Unavoidable (habitat loss) Probable (disturbance) Feasible (mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-8:** Establish buffers around raptor nests. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-3:** Temporary laydown areas **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-4:** Implement burrowing owl specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: ferruginous hawk	Turbine Option 1 Turbine Option 2 BESS Substations **Comprehensive Project**	Construction of turbines and associated roads and power lines may result in the direct and indirect loss of habitat in core and range ferruginous hawk habitat. Nesting success could be impacted by construction activities near the nest or activities change prey abundance.	High	Constant (habitat loss) Short Term (disturbance)	Unavoidable (habitat loss) Probable (disturbance)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-5**: Implement ferruginous hawk specific mitigation.	None identified
Special status species: ferruginous hawk	Solar Arrays	Three historic nesting locations would be directly impacted at the East Solar Field.	Medium	Constant	Unavoidable	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-5:** Implement ferruginous hawk specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: golden eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project could disturb golden eagles, resulting in avoidance of the Project site, though golden eagle nesting has not been reported within 10 miles of the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Spec-3:** Implement eagle specific mitigation.	None identified
Special status species: great blue heron and sandhill crane	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction may disturb birds flying over the Lease Boundary, resulting in bird flight paths being diverted around the area. Construction may result in the loss of foraging habitat.	Negligible	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Feasible (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: loggerhead shrike	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction may result in direct and indirect (disturbance) habitat loss. Mortality may occur from interactions with machinery and destruction of nests.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on Final Project layout and design. **Hab-8:** Mitigation options **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: prairie falcon	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project is predicted to result in the direct loss of suitable foraging habitat for prairie falcon. Disturbance from construction activities may result in disturbance to prairie falcons.	Medium	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Spec-8**: Implement prairie falcon specific mitigation.	None identified
Special status species: ring-necked pheasant	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project is predicted to result in the direct loss of suitable foraging habitat for ring-necked pheasant. Disturbance from construction activities may result in indirect habitat loss. Access roads may result in collisions with ring-necked pheasants.	Low	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-9:** Implement ring-necked pheasant specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: sagebrush sparrow sage thrasher	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction may result in direct and indirect habitat loss. Mortality may occur from interactions with machinery and destruction of nests.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule construction during daylight hours **Wild-9:** Time vegetation clearing outside of nesting season and provide mitigation for nesting birds. **Hab-2:** Minimize transmission line crossings. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified
Special status species: tundra swan	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction may result in the disturbance and loss of suitable foraging habitat and disruption of birds flying over the Lease Boundary.	Low	Long Term (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Feasible (disturbance, mortality)	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified
Special status species: Vaux's swift	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project could disturb Vaux's swift in flight over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: black-tailed jackrabbit white-tailed jackrabbit	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project is predicted to result in the direct loss of suitable habitat for jackrabbit. Disturbance from construction activities may result in indirect habitat loss. Access roads may result in collisions with jackrabbits, barriers to movement, and increased fragmentation.	Low	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3**: Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-10:** Implement black and white-tailed jackrabbit specific mitigation.	None identified
Special status species: Townsend's big-eared bat	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction activities could disturb Townsend's big-eared bat foraging within the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-7:** Schedule construction during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat specific mitigation.	None identified
Special status species: Townsend's ground squirrel	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction of the Project and associated access roads are predicted to result in the loss of suitable Townsend's ground squirrel habitat and destruction of colonies. Mortality may occur during construction work near colonies and along access roads.	Medium	Constant (habitat loss) Short Term (construction disturbance, construction mortality)	Unavoidable (habitat loss) Probable (disturbance, mortality)	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-12:** Implement Townsend's ground squirrel specific mitigation.	None identified

Table 4.6-11a: Summary of Potential Impacts on Wildlife and Habitat during Construction of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: pronghorn antelope	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Construction is predicted to result in direct loss of pronghorn antelope habitat. Activity associated with construction may result in indirect habitat loss. Increased traffic on existing and new access roads may result in pronghorn antelope mortality.	Medium	Constant (habitat loss) Short Term (construction disturbance)	Unavoidable (habitat loss) Probable (disturbance)	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-3:** Temporary laydown areas. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Spec-13:** Implement pronghorn antelope specific mitigation.	None identified

Notes:
[a] The impacts related to each component including "comprehensive Project" were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife Service; ZOI = zone of influence

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Habitat loss	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The Project would result in the direct loss of habitat through operation of the turbines and associated infrastructure. The Project may result in indirect habitat loss through degradation of habitat in ZOI created by disturbances (e.g., noise, light) from turbines and associated infrastructure.	Medium	Constant	Unavoidable	Local	**Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Veg-4:** As-built report and offset calculation.	None identified
Habitat loss	Solar Arrays	The Project would result in the direct loss of habitat through operation of the solar arrays and associated infrastructure. The Project may result in indirect habitat loss through degradation of habitat in ZOI created by disturbances from solar arrays and associated infrastructure.	Medium	Constant	Unavoidable	Confined	**Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Veg-4:** As-built report and offset calculation.	None identified
Habitat Loss	BESS Substations	The Project would result in the direct loss of habitat through operation of the BESS and substations. The operation of the BESS and substations may also result in indirect habitat loss through degradation of habitat in the 0.5-mile ZOI created by disturbances from these features.	Negligible	Long Term	Unavoidable	Limited	**Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-1:** Tree Avoidance. **Veg-4:** As-built report and offset calculation.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Mortality of non-special status species	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The Project may result in mortality of aerial species (birds and bats) through collisions with turbines, strikes with power lines, windows, and weather towers. Other sources of mortality on wildlife, including non-aerial species, include vehicle collisions and changes in food availability.	Medium	Long Term	Probable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-6:** Work with EFSEC on final Project layout and design.	None identified
Mortality of non-special status species	Solar Arrays	Bird species, particularly water-associated species, may collide with solar arrays. Mortality of other species, such as herptile, could occur depending on conditions under the solar facilities.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC.	None identified
Mortality of non-special status species	BESS Substations	Wildlife mortality may occur due to collisions with infrastructure, including BESS and substations.	Negligible	Long Term	Unlikely	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Barriers to movement and fragmentation	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The operation of turbines, power lines, roadways, and other linear infrastructure could result in barriers to wildlife movement and fragment habitat. Barriers and fragmentation created during construction would predominantly remain through operation.	Low	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-4:** As-built report and offset calculation.	None identified
Barriers to movement and fragmentation	Solar arrays	The east solar field is situated on a movement corridor and may impact wildlife movement. Fencing around solar arrays is expected to create barriers for larger mammals. Herptiles, small mammals, and small birds are expected to be able to continue to access vegetation around the arrays through the fencing.	Low[e]	Long Term	Probable	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-4:** As-built report and offset calculation.	None identified
Barriers to movement and fragmentation	BESS Substations	BESS and substations may create barriers to wildlife movement in the adjacent area.	Low	Long Term	Feasible	Limited	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Veg-4:** As-built report and offset calculation.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: Striped whipsnake and sagebrush lizard	Turbine Option 1 Turbine Option 2 Solar Array BESS Substations **Comprehensive Project**	Impacts on shrub and shrub-steppe habitat may result in loss of suitable reptile habitat. Increased road networks within the Lease Boundary could increase the risk of mortality sagebrush lizard and striped whipsnake. Roadways may create barriers to reptile movement and further fragment reptile habitat.	Low	Constant	Feasible	Confined	**Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-1:** Implement striped whipsnake and sagebrush lizard specific mitigation.	None identified
Special status species: American white pelican	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	American white pelicans have the potential for collision with turbines, and electrocution with overhead transmission lines. American white pelicans could collide with solar arrays as literature suggests water-associated birds may attempt to land on solar arrays if they are mistaken for water (lake effect).	Medium	Long Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI.**Spec-2**: Implement American white pelican specific mitigation.	None identified
Special status species: American white pelican	BESS Substations	Interactions with BESS and substations are not expected.	Negligible	Long Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-2:** Implement American white pelican specific mitigation.	None identified
Special status species: bald eagle	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Bald eagles are estimated to be the 17th most likely large bird to collide with the turbines, with an estimated exposure index of 0.01. Further, turbines could create barriers to bald eagle movement over the Lease Boundary.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-3:** Implement eagle specific mitigation.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: bald eagle	Solar Arrays BESS Substations	Solar arrays, BESS, substations, and other ground-based disturbances could reduce foraging habitat for bald eagles, though the Lease Boundary is not expected to provide key or important bald eagle habitat.	Negligible	Long Term	Feasible	Limited	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Spec-3:** Implement eagle specific mitigation.	None identified
Special status species: burrowing owl	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Permanent habitat loss from turbine footprint and roads would persist throughout operation. Operation of turbines could result in indirect burrowing owl habitat loss. Burrowing owls are not expected to collide with turbines but are susceptible to road-based mortality. Further, changes in prey distribution and abundance may change foraging.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-4:** Implement burrowing owl specific mitigation.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: burrowing owl	Solar Arrays BESS Substations	Areas under solar arrays may continue to provide habitat for burrowing owls, depending on conditions under the arrays. Habitat altered by the BESS and substations would be lost throughout operation. Increased traffic on roads used to access solar arrays, BESS, and substructures may result in burrowing owl mortality.	Medium	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-4**: Implement burrowing owl specific mitigation.	None identified
Special status species: ferruginous hawk	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Operation of the turbines could result in mortality due to collisions with turbines and power lines. Change in prey abundance may reduce hawk survivorship. Operation may also reduce the re-occupancy of nesting territories due to disturbance. Foraging habitat initially lost during construction would persist through operation	High	Constant	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-5:** Implement ferruginous hawk specific mitigation.	None identified

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Special status species: ferruginous hawk	Solar arrays	Solar arrays may change prey structures, resulting in impacts on adult and young survivorship. Foraging habitat initially lost during construction would persist through operation	Medium	Constant	unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-5:** Implement ferruginous hawk specific mitigation.	None identified
Special status species: ferruginous hawk	BESS Substations	Operation of the BESS and substations may result in loss of potential foraging habitat for ferruginous hawk.	Negligible	Constant	Unavoidable	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-5:** Implement ferruginous hawk specific mitigation.	None identified

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Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: golden eagle	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Golden eagles are estimated to be the 22nd most likely large bird to collide with the turbines. Further, turbines could create barriers to golden eagle movement over the Lease Boundary.	Medium	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-3:** Implement eagle specific mitigation.	None identified
Special status species: golden eagle	Solar Arrays BESS Substations	Solar arrays, BESS, substations, and other ground-based disturbances could reduce foraging habitat for golden eagles, though the Lease Boundary is not expected to provide key or important golden eagle habitat.	Negligible	Long Term	Unavoidable	Confined	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-3:** Implement eagle specific mitigation.	None identified
Special status species: great blue heron and sandhill crane	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The operation of wind turbines may result in great blue heron and sandhill crane mortality and disturbance.	Medium	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified

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Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: great blue heron and sandhill crane	Solar Arrays BESS Substations	Habitat loss during construction to accommodate the solar arrays, BESS, and substations would continue through operation.	Negligible	Long Term	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified
Special status species: loggerhead shrike	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Direct and indirect habitat loss would persist throughout Project operation. Loggerhead shrike mortality may occur due to strikes with turbines.	Medium	Constant	Unavoidable	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-6**: Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified

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Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: loggerhead shrike	Solar Arrays	Direct and indirect habitat loss would persist throughout Project operation.	Low	Constant	Unavoidable	Confined	**Wild-4**: Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified
Special status species: loggerhead shrike	BESS Substations	Direct and indirect habitat loss would persist throughout Project operation.	Negligible	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified

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Special status species: prairie falcon	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Direct habitat loss would persist throughout Project operation. Operation of the turbines may disturb prairie falcons foraging within the Lease Boundary. Operation of the turbines may result in mortality of prairie falcons. Changes in prey density may change habitat suitability and survivorship of prairie falcons.	Medium	Constant	Unavoidable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-8:** Implement prairie falcon specific mitigation.	None identified
Special status species: prairie falcon	Solar Arrays	Solar arrays may change prey dynamics within the Lease Boundary (e.g., sheltering under arrays), thereby reducing habitat suitability and survivorship of prairie falcons.	Low	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-8:** Implement prairie falcon specific mitigation.	None identified

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Special status species: prairie falcon	BESS Substations	Direct habitat loss at the BESS and substations would persist throughout operation.	Negligible	Constant	Unavoidable	Limited	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-8:** Implement prairie falcon specific mitigation.	None identified
Special status species: ring-necked pheasant	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Direct habitat loss would persist through Operation. Operation of the turbines may also result in indirect habitat loss. Ring-necked pheasant mortality may occur due to Project operation. Access roads may result in collisions with ring-necked pheasants.	Low	Long Term	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-9:** Implement ring-necked pheasant specific mitigation.	None identified
Special status species: ring-necked pheasant	Solar arrays BESS Substations	Direct habitat loss would persist throughout operation. Access roads may result in collisions with ring-necked pheasants.	Negligible	Long Term	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-8:** Mitigation options **Spec-9:** Implement ring-necked pheasant specific mitigation.	None identified

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Special status species: sagebrush sparrow and sage thrasher	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Projec**t	Direct and indirect habitat loss would persist throughout Project operation.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified
Special status species: sagebrush sparrow and sage thrasher	BESS Substations	Direct and indirect habitat loss would persist throughout Project operation.	Negligible	Long Term	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified

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Special status species: tundra swan	Turbine Option 1 **Comprehensive Project**	Operation of turbines may result in the continued loss and disturbance of foraging habitat. Operation of Option 1 may result in tundra swan mortality through collision with turbines.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Veg-4:** As-built report and offset calculation. **Spec-6**: Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified
Special status species: tundra swan	Turbine Option 2	Operation of turbines may result in the continued loss and disturbance of foraging habitat. Turbine Option 2 is predicted to have an exposure index of 0.	Negligible	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified
Special status species: tundra swan	Solar Arrays	Operation of the solar array may result in continued loss of foraging habitat. Tundra swans may be killed if attempting to land on solar arrays.	Low	Long Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified

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Special status species: tundra swan	BESS Substations	Operation of the BESS and substations may result in continued loss of foraging habitat.	Negligible	Long Term	Unavoidable	Limited	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Hab-1:** Avoid corridors. **Hab-2:** Minimize transmission line crossings. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified
Special status species: Vaux's swift	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Vaux's swift migrating over the Lease Boundary are susceptible to strikes during migration.	Low	Long Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified
Special status species: Vaux's swift	Solar Arrays BESS Substations	No effects on Vaux's swift from these facilities are expected.	Negligible	Long Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified
Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Operation of the turbines may result in indirect loss of jackrabbit habitat and mortality along access roads. Direct habitat loss is expected to persist throughout operation.	Medium	Constant	Unavoidable	Confined	**Wild-4:** Avoid use of pesticides and rodenticides **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation **Spec-10:** Implement black and white-tailed jackrabbit specific mitigation.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Solar arrays	Solar arrays could provide shelter for jackrabbits reducing predation. Mortality may along access roads may occur.	Low	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides **Wild-6**: Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-10:** Implement black and white-tailed jackrabbit specific mitigation.	None identified
Special status species: black-tailed jackrabbit and white-tailed jackrabbit	BESS Substations	Operation of the turbines may result in direct loss of jackrabbit habitat and mortality along access roads.	Negligible	Long Term	Unavoidable	Limited	**Wild-4:** Avoid use of pesticides and rodenticides **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-10:** Implement black and white-tailed jackrabbit specific mitigation.	None identified
Special status species: Townsend's big-eared bat	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Townsend's big-eared bat mortality may occur due to Project operation. Operation may result in indirect loss of foraging habitat.	Low	Long Term	Probable	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program **Wild-4:** Avoid use of pesticides and rodenticides **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat specific mitigation.	None identified
Special status species: Townsend's big-eared bat	Solar Arrays	Townsend's big-eared bat may collide with solar arrays during operation.	Low	Long Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat specific mitigation.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: Townsend's big-eared bat	BESS Substations	Interaction with BESS and substations are not predicted.	Negligible	Long Term	Unlikely	Limited	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Spec-11:** Implement Townsend's big-eared bat specific mitigation.	None identified
Special status species: Townsend's ground squirrel	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Townsend's ground squirrel mortality may continue along access roads during operation. Operation of the solar arrays may alter Townsend's ground squirrel behavior by providing shelter. Mortality may occur along access roads.	Medium	Constant	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-12:** Implement Townsend's ground squirrel specific mitigation.	None identified
Special status species: Townsend's ground squirrel	BESS Substations	Direct habitat loss would persist through operation. Mortality may occur along access roads during operation of BESS and substations.	Negligible	Constant	Feasible	Limited	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-12:** Implement Townsend's ground squirrel specific mitigation.	None identified
Special status species: pronghorn antelope	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Operation of the Project may result in direct and indirect habitat loss to pronghorn antelope. Pronghorn antelope mortality may occur along maintenance roads.	Medium	Constant	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-13:** Implement pronghorn antelope specific mitigation.	None identified

Table 4.6-11b: Summary of Potential Impacts on Wildlife and Habitat during Operation of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: pronghorn antelope	Solar Arrays	Pronghorn antelope would be precluded from solar arrays during operation due to fencing. Pronghorn antelope mortality may occur along maintenance roads.	Medium	Constant	Unavoidable	Confined	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-13:** Implement pronghorn antelope specific mitigation.	None identified
Special status species: pronghorn antelope	BESS Substations	Pronghorn antelope would be precluded from BESS and substations. Pronghorn antelope mortality may occur along maintenance roads.	Negligible	Long Term	Unavoidable	Limited	**Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-6:** Work with EFSEC on final Project layout and design. **Hab-8:** Mitigation options **Veg-4:** As-built report and offset calculation. **Spec-13:** Implement pronghorn antelope specific mitigation.	None identified

Notes:
[a] The impacts related to each component including “comprehensive Project” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; TAC = Technical Advisory Committee; USFWS = U.S. Fish and Wildlife; ZOI = zone of influence
[e] Rating was modified from Medium to Low based on post-adjudication updates to the east solar array fence lines to exclude impacts to modelled wildlife movement corridors.

Table 4.6-11c: Summary of Potential Impacts on Wildlife and Habitat during Decommissioning of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Habitat loss	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The Project would result in temporary loss of habitat during decommissioning. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation.	Negligible	Short Term	Unavoidable	Local	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-1:** Tree Avoidance. **Veg-7:** Detailed Site Restoration Plan.	None identified
Habitat loss	Solar Arrays	The Project would result in temporary loss of habitat during decommissioning. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation.	Negligible	Short Term	Unavoidable	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-1:** Tree Avoidance. **Veg-7:** Detailed Site Restoration Plan.	None identified
Habitat loss	BESS Substations	The Project would result in temporary loss of habitat during decommissioning. No new permanent habitat loss is expected, and restoration activities are expected to replace and/or enhance habitat loss created during construction and operation.	Negligible	Short Term	Unavoidable	Limited	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-1:** Tree Avoidance. **Veg-7:** Detailed Site Restoration Plan.	None identified
Mortality of non-special status species	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Sources of wildlife injuries and mortalities during decommissioning include collisions with equipment; removal of nuisance wildlife; destruction of nests, dens, and burrows; and habitat loss. The risk of mortalities would be limited to the duration of decommissioning.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit activity disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Wild-8:** Establish buffers around raptor nests.	None identified
Barriers to movement and fragmentation	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan.	None identified

Table 4.6-11c: Summary of Potential Impacts on Wildlife and Habitat during Decommissioning of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Barriers to movement and fragmentation	BESS Substations	Decommissioning would remove Project-related barriers to movement and reduce habitat fragmentation by removing infrastructure and revegetating disturbed areas.	Negligible	Short Term	Feasible	Limited	**Wild-5:** Limit activity disturbance by identifying sensitive areas. **Hab-7:** Roadway decommissioning **Veg-7:** Detailed Site Restoration Plan**.**	None identified
Special status species: striped whipsnake and sagebrush lizard	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Ground disturbance and machinery use during Project decommissioning could result in mortality of striped whipsnake and sagebrush lizard.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning **Veg-7:** Detailed Site Restoration Plan. **Spec-1:** Implement striped whipsnake and sagebrush lizard specific mitigation.	None identified
Special status species: American white pelican	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning of the Project may disturb American white pelicans moving over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Hab-4:** Develop TAC. **Spec-2:** Implement American white pelican specific mitigation.	None identified
Special status species: bald eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning of the Project could disturb bald eagles, resulting in avoidance of the Project site.	Negligible	Short Term	Feasible	Confined	**Wild-2:** Use wildlife-resistant trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Spec-3:** Implement eagle specific mitigation.	None identified

Table 4.6-11c: Summary of Potential Impacts on Wildlife and Habitat during Decommissioning of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: burrowing owl	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning may result in mortality from machinery operation over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule activity during daylight hours. **Wild-8**: Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-4:** Implement burrowing owl specific mitigation.	None identified
Special status species: ferruginous hawk	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning may result in mortality from machinery operation over the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-5:** Ferruginous hawk specific mitigation	None identified

Table 4.6-11c: Summary of Potential Impacts on Wildlife and Habitat during Decommissioning of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: golden eagle	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning of the Project could disturb golden eagles, resulting in avoidance of the Project site, though golden eagle nesting has not been reported within 10 miles of the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-2:** Use wildlife-resist trash containers. **Wild-3:** Review USFWS eagle mortality consultation. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit construction disturbance by identifying sensitive areas. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Spec-3:** Implement eagle specific mitigation.	None identified
Special status species: great blue heron and sandhill crane	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning activities may disturb birds flying over the Lease Boundary, resulting in bird flight paths being diverted around the area.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified
Special status species: loggerhead shrike	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning may disturb birds foraging and nesting within the Lease Boundary. Machinery could result in mortality of birds and destruction of nests.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified

Table 4.6-11c: Summary of Potential Impacts on Wildlife and Habitat during Decommissioning of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: prairie falcon	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Disturbance from decommissioning activities may result in disturbance to prairie falcons.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-8:** Establish buffers around raptor nests. **Veg-1:** Tree Avoidance. **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-8:** Implement prairie falcon specific mitigation.	None identified
Special status species: ring-necked pheasant	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Disturbance from decommissioning activities may result in indirect habitat loss. Access roads may result in collisions with ring-necked pheasants.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning **Veg-7:** Detailed Site Restoration Plan. **Spec-9:** Implement ring-necked pheasant specific mitigation.	None identified
Special status species: sagebrush sparrow and sage thrasher	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning may disturb birds foraging and nesting within the Lease Boundary. Machinery could result in mortality of birds and destruction of nests.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities. **Wild-7:** Schedule activities during daylight hours **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified

Table 4.6-11c: Summary of Potential Impacts on Wildlife and Habitat during Decommissioning of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: tundra swan	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning may disturb tundra swans flying over and foraging within the Lease Boundary.	Negligible	Short Term	Feasible	Confined	**Wild-1:** Review 2-year raptor and bat monitoring program. **Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas. **Hab-4:** Develop TAC. **Spec-6:** Implement great blue heron, sandhill crane, and tundra swan specific mitigation.	None identified
Special status species: Vaux's swift	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning of the Project could disturb Vaux's swifts in flight over the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Hab-4:** Develop TAC. **Spec-7:** Implement loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift specific mitigation.	None identified
Special status species: black-tailed jackrabbit and white-tailed jackrabbit	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Disturbance from decommissioning activities may result in indirect habitat loss. Access roads may result in collisions with jackrabbits.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas **Wild-6**: Maintain database of road mortalities. **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning **Veg-7:** Detailed Site Restoration Plan. **Spec-10:** Implement black and white-tailed jackrabbit specific mitigation.	None identified
Special status species: Townsend's big-eared bat	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning activities could disturb Townsend's big-eared bat foraging within the Lease Boundary.	Negligible	Short Term	Unlikely	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-7:** Schedule construction during daylight hours **Hab-4:** Develop TAC. **Spec-11:** Implement Townsend's big-eared bat specific mitigation.	None identified

Table 4.6-11c: Summary of Potential Impacts on Wildlife and Habitat during Decommissioning of the Proposed Project

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Special status species: Townsend's ground squirrel	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Mortality may occur during decommissioning and along access roads.	Negligible	Short Term	Feasible	Confined	**Wild-4:** Avoid use of pesticides and rodenticides. **Wild-5:** Limit disturbance by identifying sensitive areas **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-12:** Implement Townsend's ground squirrel specific mitigation.	None identified
Special status species: pronghorn antelope	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning is predicted to result in indirect habitat loss. Increased traffic on existing and new access roads may result in pronghorn antelope mortality.	Negligible	Short Term	Feasible	Confined	**Wild-5:** Limit disturbance by identifying sensitive areas. **Wild-6:** Maintain database of road mortalities **Hab-4:** Develop TAC. **Hab-5:** Manage ZOI. **Hab-7:** Roadway decommissioning. **Veg-7:** Detailed Site Restoration Plan. **Spec-13:** Implement pronghorn antelope specific mitigation.	None identified

Notes:
[a] The impacts related to each component including "comprehensive Project" were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; NA = not applicable; TAC = Technical Advisory Committee; ZOI = zone of influence; USFWS = U.S. Fish and Wildlife Service

4.6.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to wildlife and habitat from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.7 Energy and Natural Resources

This section evaluates the impacts of the proposed Horse Heaven Wind Farm (Project, or Proposed Action) on the availability of energy and natural resources within the Project vicinity and in the State of Washington. Section 3.7 presents the affected environment for energy and natural resources. The Project vicinity includes the areas 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and summarized in **Table 4.7-1**.

Table 4.7-1: Impact Rating Table for Energy and Natural Resources from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Table 4.7-2 describes the intended framework for using the magnitude rankings in the evaluation of impacts on energy and natural resources within Benton County and Washington State.

Table 4.7-2: Criteria for Assessing Magnitude of Impacts on Energy and Natural Resources

Magnitude of Impacts	Description
Negligible	Changes would either be non-detectable or, if detected, would have only slight effects. Modifications to resource availability locally or regionally would not be noticeable within existing supply chains or cause alterations to the management and distribution of natural resources.
Low	Changes to resource availability would be measurable, but the changes would be small enough to not hinder supply chains or the management and distribution of natural resources.
Medium	Changes to resource availability would be measurable and have impacts that disrupt supply chains or existing natural resource management plans. The viability of resource intensive projects would not be affected.
High	Changes to resource availability would be readily measurable and would have consequences on supply chains or the management and distribution of natural resources. The viability of resource intensive projects would be called into question.

4.7.1 Method of Analysis

This subsection compares the amount of energy and natural resources the Project would potentially require, and the quantities available. An adverse impact may occur if the Project depletes or limits access to a non-renewable resource or stresses the availability of a renewable resource.

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts related to energy and natural resources are discussed in Section 2.1.3 and summarized below.

- Any oily waste and rags would be collected in sealable drums at the construction yards, to be removed for recycling.
- Used gear oil from the turbines would be collected and recycled.
- Establish a carpool program or van service for the transportation of construction workers to the site.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.7.2.5, Post-Adjudication Applicant Commitments.

4.7.1.1 Construction Stage Requirements – Resources and Materials

Horse Heaven Wind Farm, LLC (Applicant), in the ASC, has indicated that the Project's construction stage would consume energy and natural resources. For instance, Project-related components, such as concrete and steel, require measurable quantities of raw materials. **Table 4.7-3** compares the amount of energy and natural resources needed to construct the Project and the probable availability of the commodities within the vicinity of the Lease Boundary or in the State of Washington.

Table 4.7-3: Materials and Resources Required for Project Construction

Commodity	Renewable/Non-renewable	Quantity Required	Availability of Resource
Construction Aggregate	Non-renewable	335,700 yards of gravel aggregate	The Project's construction requirement for gravel equates to approximately 1% of the 2017 State of Washington aggregate production.
Concrete	Non-renewable	500,000 cubic yards of concrete for facility foundations	The availability of concrete is related to the accessibility of cement, aggregate, and water.
Cement	Non-renewable	Information Not Available	In 2015, Washington consumed 1.8 million metric tons of cement. If the Project's concrete requires a higher percentage of cement than typical (e.g., 15%), it's possible that the Project would use approximately 7.65% of the cement used in Washington annually.
Steel	Non-renewable	97,600 tons of steel for turbine towers, solar posts and trackers, and reinforcement and support structures	In 2020, shipments from United States steel mills measured 81 million net tons. The amount of steel potentially consumed by the Project would equate to approximately 0.1% of the total steel produced in the United States annually.
Diesel and Gasoline	Non-renewable	Construction equipment has the potential to consume 80,000 gallons of diesel and gasoline	Washington has the fifth-largest crude oil refining capacity in the United States. The state's five refineries can process almost 652,000 barrels of crude oil per day. Washington refineries produce 2,592 million gallons per year of gasoline and 583 million gallons per year of diesel. Based on the refining capacity of Washington, the Project would consume approximately 0.0025% of the state's annual petroleum fuel production.
Diesel	Non-renewable	285,000 gallons of diesel for load bank generators during turbine commissioning	Washington refineries produce 583 million gallons per year of diesel. Based on the refining capacity of Washington, the Project would consume approximately 0.04% of Washington's annual diesel production.
Electricity	To be determined	To be determined	The Applicant has indicated in the ASC that electricity used during construction for the O&M Buildings would be provided by local utilities, Benton Public Utility District, and Benton Rural Electric Association, depending on construction location and service territory.

Table 4.7-3: Materials and Resources Required for Project Construction

Commodity	Renewable/Non-renewable	Quantity Required	Availability of Resource
Water	Renewable	120 million gallons of water for the mixing of concrete for structural foundations and to suppress fugitive dust during grubbing, clearing, grading, trenching, and soil compaction	In 2014, Kennewick supplied 3,976.9 million gallons of water to its residents and businesses. Based on Kennewick's 2014 supply data, the Project's construction water requirements would amount to approximately 3% of the annual water produced by Kennewick.

Sources: Portland Cement Association 2016, 2019; City of Kennewick 2017; AISI 2021; Horse Heaven Wind Farm, LLC 2022; DOE n.d.
ASC = Application for Site Certification; O&M = operations and maintenance

4.7.1.2 Operations Requirements – Resources and Materials

The Applicant indicated in its ASC that the Project would consume negligible amounts of energy and natural resources during operations. **Table 4.7-4** compares the amount of energy and natural resources needed to operate the Project and the probable availability of these resources within the Project vicinity or the State of Washington.

Table 4.7-4: Operational Requirements for Non-renewable and Renewable Resources

Commodity	Non-renewable/ Renewable	Quantity Required	Availability of Resource
Fuel (Gas and Diesel)	Non-renewable	Project operations have the potential to consume up to 5,000 gallons of fuel annually for vehicle use.	Based on the refining capacity of Washington, the Project's operations would consume approximately 0.00015% of Washington's annual petroleum fuel production.
Water (Total)	Renewable	Project operations have the potential to consume up to 3,850,000 gallons of water per year.	In 2014, demand for water from within Kennewick's jurisdictional boundaries was nearly 4 billion gallons. This equates to approximately 0.09% of Kennewick's annual water usage.
Water (O&M facility)	Renewable	The operations stage has the potential to consume up to 5,000 gallons per day of water for the O&M facilities. This equates to 1,825,000 gallons per year.	The annual water requirements for the O&M facilities would equate to approximately 0.04% of yearly water produced by Kennewick.

Commodity	Non-renewable/ Renewable	Quantity Required	Availability of Resource
Water (Wash Water)	Renewable	The operations stage of the Project has the potential to consume up to 2,025,000 gallons of water per year for solar panel washing.	This equates to approximately 0.05% of the water produced by Kennewick annually.
Gravel	Non-renewable	Miscellaneous or As Needed.	Multiple quarries within Benton County provide construction aggregate or gravel.

Sources: City of Kennewick 2017; Horse Heaven Wind Farm, LLC 2022; DOE n.d.
O&M = Operations and Maintenance

4.7.2 Impacts of Proposed Action

Direct impacts on energy and natural resource availability would occur as the Project consumes energy and natural resources such as fuel, water, and electricity to construct, operate and maintain, and decommission the Project.

Indirect impacts on energy and natural resources are not anticipated because the Project is not expected to substantially induce regional growth to an extent that would substantially change off-site energy and natural resource consumption.

4.7.2.1 Impacts during Construction

The Project's construction stage would result in direct adverse impacts on energy and natural resource availability. The Project's construction would require raw materials for constructing access roads, making concrete, and manufacturing Project components. As shown in **Table 4.7-3**, the Project would require the use of both renewable and non-renewable resources. The ASC states that water used to mix concrete for structural foundations and suppress fugitive dust during grubbing, clearing, grading, trenching, and soil compaction would originate from the Kennewick Utility Services Division of Public Works. For instance, the Project's construction stage would use gasoline and diesel fuel for activities such as:

- Operation of construction equipment
- Transportation of Project components to the Lease Boundary
- Mobilization and demobilization of construction workers to and from the Project site
- Power portable generators and load banks

Turbine Option 1

The consumption of energy and natural resources during the Project's construction under Turbine Option 1 would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. For instance, the installation of a turbine would require steel for support structures, fuel for construction equipment and vehicles, and concrete for foundations. The manufacturing of concrete within the Project vicinity would require water sourced locally.

As shown in **Table 4.7-3**, the Project's construction would require a small fraction of the raw and manufactured materials produced regionally and nationally. For example, 97,600 tons of steel would be used in the construction of multiple components of the Project, including turbine manufacture and installation. The Project would use approximately 0.1 percent of the steel produced annually in the United States. Of the steel needed for the Project, Turbine Option 1 would require only a portion of the estimated 97,600 tons. Therefore, Turbine Option 1 construction would result in a low, short term, unavoidable, local to regional impact on energy and natural resources.

Turbine Option 2

The consumption of energy and natural resources during the Project's construction under Turbine Option 2 would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. The impact of Turbine Option 2 on energy and natural resources during the construction stage would be similar to Turbine Option 1.

Solar Arrays

The consumption of energy and natural resources during construction of the solar arrays would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. For instance, solar arrays would require metals for support structures and panel manufacturing, fuel for construction equipment and vehicles, and concrete for foundations. The manufacturing of concrete within the Project vicinity would require water sourced locally.

As shown in **Table 4.7-3**, the Project's construction would require a small fraction of the raw and manufactured materials produced regionally and nationally. An example is construction aggregate, which would be used in the construction of the solar array foundations and access roads. The Project would use approximately 1 percent of the construction aggregate consumed in Washington annually. Additionally, solar array construction would require only a portion of the Project's 335,700 yards of gravel aggregate. Therefore, solar array construction would result in a low, short term, unavoidable, local to regional impact on energy and natural resources.

Battery Energy Storage Systems

The consumption of energy and natural resources during the Project's construction of the battery energy storage systems (BESS) would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. For instance, the installation of BESS would require metal and concrete for building construction, fuel for construction equipment and vehicles, and various raw materials for BESS manufacturing. The on-site manufacturing of concrete would require water from Kennewick. Therefore, BESS construction would result in a low, short term, unavoidable, local to regional impact on energy and natural resources.

Substations

The consumption of energy and natural resources during the Project's construction of the substations would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. Based on resource availability, the impact of substation construction on energy and natural resources would be similar to Turbine Option 1. Therefore, substation construction would result in a low, short term, unavoidable, local to regional impact on energy and natural resources.

Comprehensive Project

The consumption of energy and natural resources during the Project's construction would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. The Project's construction would require metal and concrete for turbine, solar array, BESS, substation, and building construction and fuel for construction equipment and vehicles and various raw materials for manufacturing.

The Project would use approximately 0.1 percent of the steel produced annually in the United States. The on-site manufacturing of concrete would require water from Kennewick. The Project's construction water requirements would amount to approximately 3 percent of the annual water produced by Kennewick. Impact magnitude would increase from low to medium if the City of Kennewick Utility Services Division of Public Works is required to make adjustments to their water management plans. Therefore, construction activities for the comprehensive Project would result in a low to medium, short term, unavoidable, local to regional impact on energy and natural resources for Project's construction stage.

4.7.2.2 Impacts during Operation

Typical consumption of energy and natural resources during the Project's operations stage would be associated with facility operations and maintenance (O&M). As shown in **Table 4.7-4**, Project operations would require both renewable and non-renewable resources. The 2022 ASC states that water consumption during the Project's operations stage would be associated with the limited needs of the O&M facilities and solar panel washing. Consumption of non-renewable resources during operations would be associated with the following activities:

- Electricity for lighting, heating, and other domestic purposes at the O&M facilities, which would be served by the local electric utility
- Gasoline and diesel fuel in vehicles used to patrol the site and maintain the facility
- Petroleum-based lubricants for maintenance and repair activities
- Aggregate for access road maintenance

Turbine Option 1

The consumption of energy and natural resources during the Project's operations stage under Turbine Option 1 would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. **Table 4.7-4** shows an analysis of necessary energy and natural resource requirements for the Project's operations. Turbine maintenance may require replacement turbines and generator-specific lubricants and fluids produced outside the Project vicinity. O&M vehicles would need an ongoing supply of fuel purchased locally. Water for the Project's O&M facility would be purchased from a local vendor and sourced from Kennewick.

Specifically, Project operations have the potential to consume up to 5,000 gallons of fuel annually for vehicle use. The Project's operations would consume approximately 0.00015 percent of Washington's annual petroleum fuel production. As gravel becomes displaced by traffic, winter plowing operations, and erosion of material in heavy rain, Turbine Option 1 access roads would require routine blading and adding gravel as needed either by "spot graveling" or re-graveling entire sections (USDOT 2015). As shown in Section 3.7, multiple sources of aggregate exist within Benton County. Due to the widespread availability of lubricants, fuel, vendor supplied water, and aggregate, operations of Turbine Option 1 would constitute a low, long term, unavoidable, local to regional impact.

Turbine Option 2

The consumption of energy and natural resources during the Project's operations stage under Turbine Option 2 would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. The impact of Turbine Option 2 on energy and natural resources during the Project's operations stage would be similar to Turbine Option 1. Due to the widespread availability of lubricants, fuel, vendor supplied water, and aggregate, operations of Turbine Option 2 would constitute a low, long term, unavoidable, local to regional impact.

Solar Arrays

The consumption of energy and natural resources during the solar arrays' operations stage would be measurable and would impact resource availability within the vicinity of the Lease Boundary and the State of Washington. For instance, using water to wash solar panels would impact the amount of available water that Kennewick would have to address future demands and replacement panels would require raw materials for manufacturing. O&M vehicles would need fuel purchased locally.

Specifically, the operations stage of the solar arrays has the potential to consume up to 2,025,000 gallons of water per year for solar panel washing. As shown in **Table 4.7-4**, this equates to approximately 0.05 percent of the water produced by Kennewick annually. As gravel becomes displaced by traffic, winter plowing operations, and erosion of material in heavy rain, solar array access roads would require routine blading and adding gravel as needed either by "spot graveling" or re-graveling entire sections (USDOT 2015). As shown in Section 3.7, multiple sources of aggregate exist within Benton County. Based on energy and natural resource availability, operation of the solar arrays would constitute a low, long term, unavoidable, local to regional impact.

Battery Energy Storage Systems

The consumption of energy and natural resources during the BESS operations stage would be measurable and would impact resource availability within the vicinity of the Lease Boundary and the State of Washington. The impact of BESS on energy and natural resources during the Project's operations stage would be similar to Turbine Option 1. For instance, the maintenance and replacement BESS would require fuel for maintenance equipment and vehicles, and various raw materials for replacement BESS manufacturing. Water for the Project's O&M facility would be purchased from a local vendor and sourced from Kennewick. As shown in **Table 4.7-4**, the operations stage has the potential to consume up to 5,000 gallons per day of water for the O&M facilities. This equates to 1,825,000 gallons per year or 0.04 percent of the yearly water produced by Kennewick. As gravel becomes displaced by traffic, winter plowing operations, and erosion of material in heavy rain, solar array access roads would require routine blading and adding gravel as needed either by "spot graveling" or re-graveling entire sections (USDOT 2015). As shown in Section 3.7, multiple sources of aggregate exist within Benton County. Based on energy and natural resource availability, operation of the BESS would constitute a low, long term, unavoidable, local to regional impact.

Substations

The consumption of energy and natural resources associated with the operation of the substations would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington. The impact of substation operations on energy and natural resources would be similar to Turbine Option 1. Due to the widespread availability of lubricants, fuel, vendor supplied water, and aggregate, operations of substations would constitute a low, long term, unavoidable, local to regional impact.

Comprehensive Project

The consumption of energy and natural resources during the Project's operations would be measurable and would impact resource availability within the vicinity of the Lease Boundary and in the State of Washington.

Project operation and maintenance may require generator-specific lubricants and fluids produced outside the Project vicinity. O&M vehicles would need an ongoing supply of fuel purchased locally. Project operations have the potential to consume up to 5,000 gallons of fuel annually for vehicle use. The Project's operations would consume approximately 0.00015 percent of Washington's annual petroleum fuel production.

Water for the Project's O&M facility and solar panel washing would be purchased from a local vendor and sourced from Kennewick. The Project's O&M facility has the potential to consume up to 5,000 gallons of water per day. This equates to 1,825,000 gallons per year, or 0.04 percent of the yearly water produced by Kennewick. The operations stage of the solar arrays has the potential to consume up to 2,025,000 gallons of water per year for solar panel washing. As shown in **Table 4.7-2**, this equates to approximately 0.05 percent of the water produced by Kennewick annually.

As gravel becomes displaced by traffic, winter plowing operations, and erosion of material in heavy rain, the Project's access roads would require routine blading and adding gravel as needed either by "spot graveling" or re-graveling entire sections (USDOT 2015). As shown in Section 3.7, multiple sources of aggregate exist within Benton County. Based on resource availability, operation and maintenance for the comprehensive Project would result in a low to medium, long term, unavoidable, local to regional impact on energy and natural resources.

4.7.2.3 Impacts during Decommissioning

As a result of the Lease Boundary being returned to its preconstruction state, the need for measurable quantities of water, concrete, and other renewable and non-renewable resources for decommissioning is expected to be low. Decommissioning activities would not likely require metals associated with energy component manufacturing. Impacts from energy consumption during Project decommissioning would be similar to or less than those described for the Project's construction stage. Energy consumption, predominantly in the form of gasoline, diesel fuel, and electricity, would be required to operate equipment such as cranes, trucks, tools, and vehicles used to dismantle and remove most Project facilities and reclaim disturbed areas.

As part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center. Unsalvageable material would be reduced to a transportable size and removed from the site and permanently disposed of in accordance local, state, and federal solid waste regulations.

Turbine Option 1

The consumption of energy and natural resources during the Project's decommissioning of Turbine Option 1 would be measurable and affect resource availability within the vicinity of the Lease Boundary. The Project's decommissioning stage would likely require smaller quantities of energy and natural resources than the construction stage. The dismantling of structures and backfilling of void spaces would require energy and construction aggregate. There are local sources of fuel and construction aggregate to support the decommissioning stage. Decommissioning of Turbine Option 1 would constitute a low, short term, unavoidable, local impact on energy and natural resources.

Turbine Option 2

The consumption of energy and natural resources during the Project's decommissioning of Turbine Option 2 would be measurable and affect resource availability within the vicinity of the Lease Boundary. Impacts from the decommissioning of Turbine Option 2 on energy and natural resources would be similar to those described for Turbine Option 1. Decommissioning of Turbine Option 2 would constitute a low, short term, unavoidable, local impact on energy and natural resources.

Solar Arrays

The consumption of energy and natural resources during the Project's decommissioning of the solar arrays would be measurable and affect resource availability within the vicinity of the Lease Boundary. Impacts from the decommissioning of the solar arrays on energy and natural resources would be similar to those described for Turbine Option 1. Decommissioning of solar arrays would constitute a low, short term, unavoidable, local impact on energy and natural resources.

Battery Energy Storage Systems

The consumption of energy and natural resources during the Project's decommissioning of the BESS would be measurable and affect resource availability within the vicinity of the Lease Boundary. Impacts from the decommissioning of the BESS on energy and natural resources would be similar to those described for Turbine Option 1. Decommissioning of BESS would constitute a low, short erm, unavoidable, local impact on energy and natural resources.

Substations

The consumption of energy and natural resources during the Project's decommissioning of the substations would be measurable and affect resource availability within the vicinity of the Lease Boundary. Impacts from the decommissioning of the substations on energy and natural resources would be similar to those described for Turbine Option 1. Decommissioning of substations would constitute a low, short term, unavoidable, local impact on energy and natural resources.

Comprehensive Project

The consumption of energy and natural resources during the Project's decommissioning would be measurable and affect resource availability within the vicinity of the Lease Boundary. Impacts from decommissioning of the Project on energy and natural resources would be similar to those described for Turbine Option 1. Decommissioning of the comprehensive Project would constitute a low, short term, unavoidable, local impact on energy and natural resources.

4.7.2.4 Recommended Mitigation Measures

This section describes the measures that would reduce or compensate for impacts related to energy and natural resources from construction, operation, and decommissioning of the Project. The Washington Energy Facility Site Evaluation Council (EFSEC) has identified the following additional and modified mitigation measures for the Project to avoid and/or minimize potential impacts on energy and natural resources. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action:

ENR-1:[40] The Applicant would provide an executed agreement to EFSEC that identifies the source and quantity of water intended to be supplied to the Project prior to its construction, operation, and decommissioning.

Rationale: Provides verification that water being used by the Project is originating from a sustainable source.

ENR-2: The Applicant would install high-efficiency electrical fixtures and appliances in the O&M facility, BESS, and substations to reduce energy needs for the Project's operations stage.

Rationale: Reduces the Project's demands on energy and natural resources.

ENR-3: The Applicant would install high-efficiency security lighting to reduce energy needs for the Project's operations stage.

Rationale: Reduces the Project's demands on energy resources.

ENR-4: The Applicant would install low-water-use flush toilets in the O&M facilities to reduce the Project's water requirements during its operations stage.

Rationale: Reduces the Project's demands on water resources.

ENR-5: The Applicant would capture and recycle wash water to reduce the Project's water requirements during its operations stage.

Rationale: Reduces the Project's demands on water resources.

ENR-6: To retrieve as much of the natural resources used in construction and operation of the Project as possible, the Applicant would demolish and recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. If the Applicant intends to leave any portion of the facility, including concrete foundations, they must submit a request to EFSEC in an update to their decommissioning plan.

Rationale: Reduces the Project's demands on natural resources.

4.7.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns.

[40] ENR-: Identifier of numbered mitigation item for Energy and Natural Resources

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and consider undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[41]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remain. The additional Applicant commitments identified above do not change the impact ratings previously provided for energy and natural resources in the Draft EIS, and the impact ratings remain the same.

[41] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

4.7.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (Washington Administrative Code 197-11-794).

This Environmental Impact Statement weighs the potential impacts on energy and natural resources that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.7-5a, 4.7-5b, and 4.7-5c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to energy and natural resources.

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Table 4.7-5a: Summary of Potential Impacts on Energy and Natural Resources during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Consumption of Raw Materials and Commodities	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	The installation of a turbine would require steel for support structures, fuel for construction equipment and vehicles, and concrete for foundations. The manufacturing of concrete within the Project vicinity would require water sourced locally.	Low	Short Term (for the entire component)	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement	None identified
Consumption of Raw Materials and Commodities	**Comprehensive Project**	The Project's construction would require metal and concrete for turbine, solar array, BESS, substation, and building construction and fuel for construction equipment and vehicles and various raw materials for manufacturing. The Project's construction water requirements would amount to approximately 3% of the annual water produced by Kennewick. Impact magnitude would increase from low to medium if the City of Kennewick Utility Services Division of Public Works is required to make adjustments to their water management plans.	Low to Medium (i.e., will increase if the City of Kennewick Utility Services Division of Public Works is required to make adjustments to their water management plans)	Short Term	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.7-5b: Summary of Potential Impacts on Energy and Natural Resources during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Consumption of Raw Materials and Commodities	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations	Turbine maintenance may require generator-specific lubricants and fluids produced outside the Project vicinity. O&M vehicles would need an ongoing supply of fuel purchased locally. Water for the Project's O&M facility would be purchased from a local vendor and sourced from Kennewick. Aggregate for access road maintenance would be obtained locally.	Low	Long Term	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement **ENR-2:** Install high-efficiency electrical fixtures and appliances **ENR-3:** Install high-efficiency security lighting **ENR-4:** Install low-water-use flush toilets **ENR-5:** Capture and recycle wash water	None identified
Consumption of Raw Materials and Commodities	**Comprehensive Project**	Project maintenance may require generator-specific lubricants and fluids produced outside the Project vicinity. O&M vehicles would need an ongoing supply of fuel purchased locally. Water for the Project's O&M facility and solar panel washing would be purchased from a local vendor and sourced from Kennewick. Aggregate for access road maintenance would be obtained locally.	Low to Medium	Long Term	Unavoidable	Local to Regional (depending on sourcing of the materials)	**ENR-1:** Executed water supply agreement **ENR-2:** Install high-efficiency electrical fixtures and appliances **ENR-3:** Install high-efficiency security lighting **ENR-4:** Install low-water-use flush toilets **ENR-5:** Capture and recycle wash water	None identified

Notes:
(a) The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
(b) Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
(c) Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
(d) Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; O&M = operations and maintenance

Table 4.7-5c: Summary of Potential Impacts on Energy and Natural Resources during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Consumption of Raw Materials and Commodities	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Energy consumption, predominantly in the form of gasoline, diesel fuel, and electricity, would be required to operate equipment such as cranes, trucks, tools, and vehicles used to dismantle and remove most Project facilities and reclaim disturbed areas. Backfilling void spaces created by the removal of foundations would require construction aggregate.	Low	Short Term	Unavoidable	Local	**ENR-6:** Recycle all components of the Project	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

4.7.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to energy and natural resources from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.8 Land and Shoreline Use

Washington Administrative Code (WAC) 197-11-444 requires that a State Environmental Policy Act evaluation include an analysis of land and shoreline use. Section 3.8 presents the affected environment for land and shoreline use. This section evaluates the impacts of the proposed Horse Heaven Wind Farm (Project, or Proposed Action) on Benton County designated Growth Management Act (GMA) Agriculture lands within the Lease Boundary and the wineries and agritourism businesses located near the Project. In addition to agriculture, WAC 197-11-444 also requires an analysis of the following resource topics as part of an evaluation of land and shoreline use:

- Section 4.16 Socioeconomics - Housing
- Section 4.10 Visual Aspects, Light and Glare – Light and Glare
- Section 4.10 Visual Aspects, Light and Glare – Aesthetics
- Section 4.12 Recreation
- Section 4.9 Historic and Cultural Resources – Historic and Cultural Preservation

These additional resource topics are evaluated in their corresponding sections. Appendix 3.8-1 presents a consistency analysis of the Project, the Benton County Comprehensive Plan, and Benton County zoning ordinances. The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and summarized in **Table 4.8-1**.

Table 4.8-1: Impact Rating Table for Land and Shoreline Use from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Table 4.8-2 describes the intended framework for using the magnitude rankings in the evaluation of impacts on lands designated as GMA Agriculture within the Lease Boundary and wineries and agritourism businesses located near the Project.

Table 4.8-2: Criteria for Assessing Magnitude of Impacts on Growth Management Act Agricultural Designated Lands

Magnitude of Impacts	Impacts on Agriculture, Wineries, and Agritourism
Negligible	**Loss of Productivity:** No change in the management of GMA Agricultural lands. Loss of agricultural production or GMA Agricultural lands would not be detectable. **Reduction in Profitability:** Indirect impacts from the Project on environmental setting and viewing opportunities for nearby wineries and agritourism businesses would not occur. The Project would have no impact on the ability of the wineries and agritourism businesses to remain profitable and continue operations.
Low	**Loss of Productivity:** Changes to agricultural production or loss of GMA Agricultural lands would be measurable, but the changes would not impact the ability of a farm to remain profitable and continue operations. Any changes to GMA Agricultural lands would be reversible following the decommissioning stage. **Reduction in Profitability:** Indirect impacts on environmental setting and viewing opportunities would not impact the ability of wineries and agritourism businesses to remain profitable and continue operations. Potential changes would be reversible following the decommissioning stage.
Medium	**Loss of Productivity:** Changes to agricultural production or loss of GMA Agricultural lands would be measurable and would impact profitability and operations but would be reversible following the decommissioning stage. **Reduction in Profitability:** Indirect impacts on environmental setting and viewing opportunities may change the profitability and operations of wineries and agritourism businesses. Potential changes would be reversible following the decommissioning stage.
High	**Loss of Productivity:** Changes to agricultural production or loss of GMA Agricultural lands would be measurable and would affect a farm's ability to remain a profitable operation and could be irreversible. **Reduction in Profitability:** Indirect impacts on environmental setting and viewing opportunities would impact profitability and operations of wineries and agritourism businesses. Potential changes could be irreversible.

GMA = Growth Management Act

4.8.1 Method of Analysis

As noted in Section 3.8, Benton County's comprehensive land use plan and land use regulations were prepared in accordance with the GMA. The Local Project Review Act (Chapter 36.70B Revised Code of Washington) encourages counties and cities that are subject to the GMA to rely on applicable development regulations and comprehensive land use plan policies in analyzing and addressing environmental impacts.

For aspects of the Project's design that may not be in alignment with Benton County Code 11.17.070 Growth Management Act Agricultural District or the Benton County Comprehensive Plan, the Washington Energy Facility Site Evaluation Council (EFSEC) conducts an adjudicative process to evaluate arguments and evidence from the applicant and intervening parties, including the county government, and to make findings of fact and legal determinations pertinent to whether the project should be approved outright, approved with conditions, or denied.

The Benton County Comprehensive Plan states that the county should accommodate the land needs of both agricultural and non-agricultural uses. With regards to rezoning agricultural lands, Benton County's Comprehensive Plan states the following:

> *In general, it was deemed important to maintain continuity in agricultural resource land designation; unless there are sufficient reasons that the agricultural resource land should be de-designated, land should remain as agricultural resource land to protect the resource. (Benton County 2022)*

The Benton County Comprehensive Plan states that the county should maintain the financial viability of all economic sectors. Benton County considers the following guiding principles in managing designated GMA Agriculture lands within its jurisdictional boundaries:

- Preserve and protect agricultural and resource lands
- Allow rural lifestyle in rural lands
- Allow growth where services are available (Benton County 2022)

Economic Considerations

Decreases in food security and farmer profitability are adverse impacts that could occur from converting agricultural lands to non-agricultural purposes. Conversely, decreases in supply of agricultural products could increase the value of the product. **Table 4.8-3** summarizes wheat yields and crop value in Washington State for the years 2020 and 2021.

Table 4.8-3: Summary of Wheat Yields and Value in Washington State

Harvest Year	Price Per Bushel of Wheat	Average Yield Per Acre	State-Wide Production of Wheat (bushels)
2020	$ 5.70	72.4	166,245,000
2021	$ 8.67	39.1	87,180,000

Source: USDA 2022a

The Project would be microsited to avoid and minimize disruptions to existing cropland. Additionally, the Project would provide new revenue to participating agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2022). Horse Heaven Wind Farm, LLC (Applicant) has not made the value of its agreements with participating landowners public.

In addition to direct impacts on crop production, adverse indirect impacts on wineries and agritourism businesses could occur. For instance, potential changes to the environmental setting's visual aspects could affect the aesthetics associated with the wineries and their agritourism businesses (e.g., tasting rooms).

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the

characterization of potential impacts on land and shoreline use are discussed in Section 2.1.3 and summarized below.

- Project construction and operation would follow site-specific best management practices to minimize potential impacts on noise, traffic, vegetation, visual resources, and air quality, as described in the respective resource sections of the ASC.
- Upon decommissioning of the Project, the Applicant would remove all above-grade infrastructure and below-ground infrastructure to a depth of not less than 3 feet below grade.
- The Applicant would replace topsoil and reseed areas where facilities were located with grasses and/or other vegetation reasonably acceptable to the landowner.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.8.2.5, Post-Adjudication Applicant Commitments.

4.8.2 Impacts of Proposed Action

Impacts associated with or attributable to specific Project elements are discussed for each Project stage below. Potential direct impacts of the Project would include the conversion of agricultural lands to utility-related uses and a reduction in agricultural productivity of designated GMA Agriculture lands. Similar to what is presented in Section 4.5, Vegetation, loss of agricultural lands is divided into two types:

- **Temporary Disturbance**: Loss of agricultural productivity would end when construction is complete, and the area would be restored to preconstruction condition (WDFW 2009). Temporary disturbance from Project construction would occur in equipment laydown areas, construction staging areas, some roads, and areas required for construction that would not be part of the permanent infrastructure. These areas would be returned to the applicable agricultural purpose once construction is complete.
- **Permanent Disturbance**: Loss of agricultural productivity would persist throughout the life of the Project and would not be fully restored until following Project decommissioning (WDFW 2009). Permanent disturbance from Project construction (which extends into operation and decommissioning) would occur in the areas of the final tower footings and associated access roads, the substations, fencing around the solar arrays, and all areas occupied by permanent structures. Permanent disturbance also includes areas identified by the Applicant as modified habitat, which includes areas within the fencing around solar arrays. The areas under and between solar arrays would be disturbed during Project construction and would be replanted following construction; however, areas under the solar arrays would not support agricultural activities.

As shown in **Table 4.8-4**, the Project during construction would permanently impact 6,869 acres and temporarily impact 2,957 acres of the Lease Boundary's 72,428 acres (Horse Heaven Wind Farm, LLC 2022). As such, construction activities would impact approximately 14 percent of the Lease Boundary. Construction activities would cause both temporary and permanent impacts. Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. Within the Wind Energy Micrositing Corridor and Solar Siting Area alone, 21,216 acres are managed as dryland wheat. Of the 2,957 acres temporarily impacted by construction, 2,324 acres are currently being managed for agricultural purposes (Horse Heaven Wind Farm, LLC 2022).

Table 4.8-4: Impacts on Agricultural Lands within the Lease Boundary

Impact Status	Project Impacts on Lease Boundary (acres)[b]	Percentage of Lease Boundary Impacted by Project	Project Impacts on Agricultural Land (acres)	Percentage of Project Impacts That Are Agricultural Land
Permanent[c]	6,869	9.5%	6,866	99.9%
Temporary	2,957	4%	2,324 [b]	79%

Source: Horse Heaven Wind Farm, LLC 2022
Notes:
[a] Based on Turbine Option 1 maximum number of turbines
[b] Land could be returned to agricultural production following decommissioning

Land north of and adjacent to the Lease Boundary consists predominantly of dryland agriculture and agricultural rangelands, with small areas of adjacent development. Land to the east and south of, and adjacent to, the Lease Boundary consists predominantly of a mixture of dryland and irrigated agriculture. Land west of and adjacent to the Lease Boundary consists of dryland agriculture (Horse Heaven Wind Farm, LLC 2022).

Table 4.8-5 shows an analysis of the agricultural management practices for GMA Agriculture designated lands within Benton County, and the impacts that the Project would have on these land use types.

Table 4.8-5: Analysis of Project Impacts on Benton County GMA Agricultural Designated Lands

GMA Agriculture Land Type	County-wide Total Acres	Permanent Impact Acres[a]	Percentage of County GMA Total Acreage Permanently Impacted
Dryland	304,839	6,863	2.3
Irrigated	296,432	2	<0.01
Rangeland	112,190	1	<0.01

Sources: Benton County 2020; Horse Heaven Wind Farm, LLC 2022
[a] Land could potentially be returned to agricultural production following decommissioning
GMA = Growth Management Act

Indirect Impacts on Wineries and Agritourism

Indirect impacts on wineries and agritourism businesses outside the Lease Boundary would occur from changes to viewsheds. The following provides a brief summary of visual impacts discussed in Section 4.10 that would affect wineries and agritourism businesses near the Project:

- The Project would result in the Horse Heaven Hills and northern ridgeline becoming dominated by energy infrastructure.
- The potential exists for long-duration views of energy infrastructure from areas within the communities between Benton City and Kennewick.

These impacts on aesthetics would be greater in areas with unobstructed views of a large number of turbines. Even where the existing setting includes a smaller wind farm and two existing transmission lines, the scale of the Project and prominence of the proposed turbines would result in visual impacts on the existing landscape. The

following sections include discussion of the Project's indirect impact on wineries and agritourism businesses for each of the Project's stages and components.

4.8.2.1 Impacts during Construction

Direct Impacts

The Applicant defines permanent disturbance as the facility's foundation and graveled area and temporary disturbance as the area around the facility. Wind turbines, solar arrays, battery energy storage systems (BESS), substations, and transmission lines would all require subsurface foundations, while the Applicant has indicated that the Project's permanent access roads would be gravel. Temporary land use disturbance would result from the following actions:

- Preparation of laydown yards
- Construction of access roads, road modifications, and crane paths
- Installation of turbines
- Installation of overhead and underground collectors
- Installation of transmission lines, meteorological towers, and meteorological tower roads
- Construction of substations, BESS, and solar arrays
- Construction of the operations and maintenance (O&M) facility

The estimated amount of temporary land disturbance would be similar under Turbine Option 1 and Turbine Option 2 (see Chapter 2, Proposed Action and Alternatives) for all Project construction phases. Section 4.14, Transportation, evaluates the impact that additional truck traffic may have on neighboring rural communities.

It is anticipated that once construction of the solar arrays has begun, exclusionary fencing would prevent further livestock access to the solar fields. Additionally, agricultural land that would be permanently disturbed by Project facilities would limit agricultural uses within the Lease Boundary. Permanent facilities would include turbine support structures, solar array and substation areas, and O&M facilities (Horse Heaven Wind Farm, LLC 2022).

Indirect Impacts

Indirect impacts on wineries and agritourism businesses would occur as the Project's contractor removes existing vegetation and installs turbines, causing a contrast with the surrounding landscape. Potential changes to the viewshed from construction activities would diminish the aesthetic value presented to the wineries and agritourism visitors. Specifically, the parts of the businesses that would be mostly impacted by the diminished aesthetic value are the areas that cater to the customers leisure experiences (e.g., tasting rooms, outdoor dining and patios, and tours of the farms or vineyards).

Turbine Option 1

Agricultural Productivity

Agricultural productivity would be directly impacted by Turbine Option 1. Construction activities under Turbine Option 1 would result in a negligible to low, temporary to short-term, unavoidable, limited to regional impact on agricultural activities during the Project's construction stage. As shown in **Tables 4.8-4** and **4.8-5**, the majority of the Project's land-disturbing activities would occur on agricultural lands used for dryland wheat production.

Table 2.1-1 of Chapter 2, Proposed Action and Alternatives, illustrates that the combined permanent land disturbance from Turbine Option 1 would be 30 acres and the temporary disturbance would be 1,070 acres.

During Project construction, it may be necessary to remove cattle from areas where blasting or heavy equipment operations take place. Project construction could delay agricultural activities for short durations on adjacent properties. For instance, Project-related truck traffic and construction activities could cause temporary delays in the movement of farm machinery within and around the Lease Boundary. During construction, reduced access to fields within the Lease Boundary could impact existing dryland agricultural management programs.

Based on 2020 and 2021 U.S. Department of Agriculture (USDA) wheat statistics for the State of Washington, Turbine Option 1 could reduce wheat yields in Benton County by 35,420 to 82,500 bushels for any given year. This analysis assumes that all 1,100 temporary and permanently impacted acres under Turbine Option 1 could be lost to production for the entire construction stage. Loss of a single harvest season for approximately 1,100 acres would equate to approximately 0.05 percent of Washington's annual wheat production (USDA 2022a).

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by Turbine Option 1. As stated in Section 3.8, the two closest wineries are located approximately 1 mile and 1.8 miles north of the Lease Boundary. These two wineries are located outside the foreground distance zone, which is defined as 0 to 0.5 miles from the Project. The foreground distance zone would have views of a large portion of the Project during the construction stage under Turbine Option 1. The majority of the other wineries located to the north of the Lease Boundary are approximately 2.5 to 5 miles away.

The two closest wineries would experience more visual contrasts related to construction under Turbine Option 1 than the wineries located further away. For the wineries located between 2.5 and 5 miles from the Lease Boundary, construction activities would be mostly indiscernible. As analyzed in Section 4.10, viewpoints and key observation points (KOPs) located within the foreground distance zone would experience the greatest impacts from construction under Turbine Option 1. The construction of access roads, crane paths, collector and communication lines, and wind turbines would be noticeable when viewed from 0 to 0.5 miles from the Lease Boundary. There are no wineries or agritourism businesses within the foreground distance zone. Based on the location of the nearest wineries and agritourism businesses in relation to the Project, indirect impacts on wineries and wine-tasting tourism would be low, short term, feasible, and local.

Turbine Option 2

Agricultural Productivity

Agricultural productivity would be directly impacted by Turbine Option 2. Construction activities under Turbine Option 2 would result in a negligible to low, temporary to short-term, unavoidable, limited to regional impact on agricultural activities during the Project's construction period. As shown in **Table 4.8-4** and **Table 4.8-5**, the majority of the Project's land-disturbing activities would occur on agricultural lands. Table 2.1-1 of Chapter 2, Proposed Action and Alternatives, illustrates that the combined permanent land disturbance from turbine installation under Turbine Option 2 would be 30 acres and the temporary disturbance would be 1,070 acres. Impacts on agricultural activities from construction under Turbine Option 2 would be similar to those presented for Turbine Option 1.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by Turbine Option 2. The Applicant estimates that the lower number of turbines under Option 2 would result in a lower level of contrast and fewer modifications of the existing landscape character than Turbine Option 1. However, construction under Turbine Option 2 would still result in indirect impacts on the viewsheds of wineries and agritourism businesses near the Project. Construction would include ground excavations, use of heavy equipment, and installation of turbines. It is estimated that the Project's indirect impacts on the viewsheds of wineries and agritourism businesses would be similar to those presented for construction under Turbine Option 1.

Solar Arrays

Agricultural Productivity

Agricultural productivity would be directly impacted by solar array construction. Construction activities for the Project's solar arrays would result in a low, temporary to short-term, unavoidable, limited to regional impact on agricultural activities during the Project's construction period. As shown in **Table 4.8-4** and **Table 4.8-5**, the majority of the Project's land-disturbing activities would occur on agricultural lands. Table 2.1-2 of Chapter 2, Proposed Action and Alternatives, illustrates that the combined permanent land disturbance from the three solar arrays would be 6,570 acres and the temporary disturbance would be 77 acres.

Using 2020 and 2021 USDA wheat statistics for the State of Washington, the solar arrays could reduce wheat yields in Benton County by 259,898 to 481,243 bushels for any given year. This analysis assumes that all 6,647 temporary and permanently impacted acres under the solar arrays action would be lost to production for the entire construction stage. A loss of a single harvest season for approximately 6,647 acres would equate to approximately 0.3 percent of Washington's annual wheat production. While the United States ranks among the top three global wheat exporters, any decrease in global wheat supplies could impact the ability of vendors and suppliers in the Pacific Northwest to make up for a reduction in wheat grown locally (USDA 2022b).

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by solar array construction. The construction of the solar arrays would occur within a smaller, more defined area associated with the selected solar array areas of the Lease Boundary. The conversion of existing agricultural lands to land containing photovoltaic panels would result in visual contrast and changes in the landscape setting. Construction of the solar arrays would mainly impact viewing opportunities located within the foreground distance zone. Because no wineries or agritourism businesses are located within the foreground distance zone, construction of the solar arrays would result in negligible, short-term, unlikely, and local indirect impacts.

Battery Energy Storage Systems

Agricultural Productivity

Agricultural productivity would be directly impacted by BESS construction. Construction activities for the BESS would result in a negligible to low, temporary to short-term, unavoidable, limited to regional impact on agricultural activities during the Project's construction stage. As shown in **Table 4.8-4** and **Table 4.8-5**, the majority of the Project's land-disturbing activities would occur on agricultural lands. Table 2.1-2 of Chapter 2, Proposed Action and Alternatives, illustrates that the combined permanent land disturbance from the BESS would be 18 acres and the temporary disturbance would be 1 acre. Impacts on agricultural activities from the construction of BESS would be similar to those presented for Turbine Option 1.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by BESS construction. Indirect impacts related to construction of the BESS would be similar to those anticipated for the construction of the solar arrays.

Substations

Agricultural Productivity

Agricultural productivity would be directly impacted by substation construction. Construction activities for substations would result in a negligible to low, temporary to short-term, unavoidable, limited to regional impact on agricultural activities during the Project's construction period. As shown in **Table 4.8-4** and **Table 4.8-5**, the majority of the Project's land-disturbing activities would occur on agricultural lands. Table 2.1-2 of Chapter 2, Proposed Action and Alternatives, illustrates that the combined permanent land disturbance from the substations would be 38 acres and the temporary disturbance would be 3 acres. Impacts on agricultural activities from the construction of substations would be similar to those presented for Turbine Option 1.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by substation construction. Indirect impacts related to construction of the substations would be similar to those anticipated for the solar arrays and BESS.

Comprehensive Project

Agricultural Productivity

Agricultural productivity would be directly impacted by construction of the comprehensive Project. Construction activities for the comprehensive Project would result in a low to medium, temporary to short-term, unavoidable, limited to regional impact on agricultural activities during the Project's construction period. As shown in **Table 4.8-4** and **Table 4.8-5**, the majority of the Project's land-disturbing activities would occur on agricultural lands. Except for magnitude, impacts on agricultural activities from the construction of the comprehensive Project would be similar to those presented for Turbine Option 1 and the solar arrays. As a result of constructing various components of the Project simultaneously, the magnitude of impact on agricultural management plans is likely to increase when compared to the Project's individual components. It is anticipated that the farmers and ranchers would have to continuously adapt to construction activities as the Project's construction progresses.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by construction of the comprehensive Project. During the comprehensive Project's 23-month construction schedule, there would be short-term indirect impacts from construction activities occupying a large portion of the landscape. The removal of vegetation would be noticeable in the setting and contrast with the existing character. The indirect impact from the removal of vegetation on the wineries' and agritourism businesses' viewshed would be temporary as revegetated areas post-construction would begin to resemble surrounding landscapes.

As analyzed in Section 4.10, KOPs located within the foreground distance zone would experience the greatest impacts from construction of the comprehensive Project. Assessment of visual resources concluded that construction of the comprehensive Project would result in short-term impacts beyond the neighboring receptors. For more details on potential impacts on visual aspects refer to Section 4.10.

As stated in Section 3.8, the two closest wineries to the Project site are located approximately 1 mile and 1.8 miles north of the Lease Boundary. These two wineries are located outside the foreground distance zone,

which would have views of a large portion of the Project's construction phase. The majority of other wineries located to the north of the Lease Boundary are approximately 2.5 to 5 miles away.

The two closest wineries would experience more visual contrasts than the wineries located further away. For the wineries located between 2.5 and 5 miles from the Project site, construction activities would be mostly indiscernible. Based on the location of the wineries in relationship to the Project, the comprehensive Project would result in low, short-term, feasible, and local indirect impacts on nearby agritourism and wineries. The magnitude rating would be potentially reduced for wineries and agritourism businesses whose customer focused experiences are directed away or located within areas that have existing barriers to viewing the Project.

4.8.2.2 Impacts during Operation

Direct Impacts

Project facilities would result in the permanent conversion of 6,869 acres of the Lease Boundary's 72,428 acres. The 6,866 acres currently managed for agricultural purposes converted for the Project would no longer be available for agricultural use. Permanently altered acreage would represent 9 percent of the 72,428 acres of land designated as GMA Agriculture within the Lease Boundary and 1 percent of the 649,153 acres of land designated as GMA Agriculture within Benton County.

During operation, agricultural uses would continue within the Lease Boundary and surrounding area (Horse Heaven Wind Farm, LLC 2022). Except for places where livestock would be specifically excluded or where dryland wheat would be grown, cattle, sheep, and other domestic animals would be able to graze up to the turbines and around transmission and collector line support structures. The 2022 ASC states that exclusionary fencing would be installed around the solar arrays. In this context, loss of dryland wheat and grazing land would constitute an adverse impact on agricultural activities during operation.

Indirect Impacts

Indirect impacts on agritourism and wineries near the Project would occur as the presence of turbines occupying the landscape diminishes the viewsheds surrounding the businesses.

Turbine Option 1

Agricultural Productivity

Agricultural productivity would be directly impacted by operation of Turbine Option 1. The permanent conversion of land under Turbine Option 1 would constitute a negligible, long-term, unavoidable, limited to regional impact on agricultural activities in Benton County. Although livestock would be able to graze up to the turbines and associated structures under Turbine Option 1, measurable acreage would be taken out of agricultural management.

As shown in Table 2.1-1 of Chapter 2, Proposed Action and Alternatives, Turbine Option 1 would result in permanent land disturbance of 30 acres. This permanent impact on land represents less than 1 percent of the Lease Boundary's total acreage and less than 1 percent of the more than 21,216 agriculturally managed acres within the Lease Boundary.

Using 2020 and 2021 USDA wheat statistics for the State of Washington, Turbine Option 1 could reduce wheat yields in Benton County by 966 to 2,250 bushels for any given year. This analysis assumes that all 30 permanently impacted acres under Turbine Option 1 would be lost to production for the entire operations stage.

Loss of a single harvest season for approximately 30 acres would equate to less than 0.01 percent of Washington's annual wheat production.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by operation of Turbine Option 1. Under Turbine Option 1, the Project would generally dominate the existing landscape character through the introduction of vertical turbines. The turbines would be out of scale with the existing landscape. The greatest visual impacts would occur within the foreground distance zone. However, there are no wineries or agritourism businesses within the foreground distance zone.

Visual impacts that have the potential to occur within the middle ground distance zone would differ based on the extent of existing conditions. The middle ground distance zone is defined as 0.5 and 5 miles from the Lease Boundary. Due to differences in distance and location, indirect impacts on wineries and agritourism businesses located in the middle ground zone would vary. For example:

- For wineries and agritourism businesses with views of the existing Nine Canyon Wind Project, or where the existing transmission lines already dominate the viewshed, the Project would typically result in smaller changes to the landscape's existing character. For these locations, indirect impacts from the Project on the businesses' operations and profitability would be small and difficult to measure.
- For wineries located east of Benton City or southeast of the City of West Richland, where most of the vineyards and agritourism businesses are located, the Horse Heaven Hills would partially block views of the Project. For these wineries and agritourism businesses, indirect impacts from the Project on operations and profitability would be small and difficult to measure.

Due to the presence of turbines within the viewshed of wineries and agritourism businesses located in the middle ground distance zone, Turbine Option 1 would have a low, long-term, probable, and local indirect impact on their operations and profitability.

Turbine Option 2

Agricultural Productivity

Agricultural productivity would be directly impacted by operation of Turbine Option 2. The permanent conversion of land under Turbine Option 2 would constitute a negligible, long-term, unavoidable, limited to regional impact on agricultural production in Benton County. Impacts on agricultural activities under Turbine Option 2 would be similar to those presented for Turbine Option 1 for the Project's operations stage.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by operation of Turbine Option 2. Due to having fewer turbines, Turbine Option 2 would introduce a reduced level of contrast and fewer modifications to the existing landscape character than Turbine Option 1. However, due to the presence of turbines within the viewshed of wineries and agritourism businesses within the middle ground distance zone (0.5 to 5 miles from the Lease Boundary), operation of Turbine Option 2 would result in impacts similar to those described for Turbine Option 1.

Solar Arrays

Agricultural Productivity

Agricultural productivity would be directly impacted by operation of the solar arrays. The permanent conversion of land use associated with the operation of the solar arrays would constitute a low, long-term, unavoidable, limited

to regional impact on agricultural production in Benton County. As noted, the ASC states that exclusionary fencing would be installed around the solar arrays. Exclusionary fencing would prevent the solar array areas from being used for agricultural activities throughout the Project's operation stage. This would result in a reduction in dryland wheat production and, potentially, a loss in grazing areas for livestock. Table 2.1-2 of Chapter 2, Proposed Action and Alternatives, shows that the combined permanent land disturbance from the three solar arrays would be 6,570 acres, the majority of which is currently being managed for agricultural purposes.

Using 2020 and 2021 USDA wheat statistics for the State of Washington, solar arrays could reduce wheat yields in Benton County between 211,554 and 492,750 bushels for any given year. This analysis assumes that all 6,570 permanently impacted acres under the solar arrays action would be lost to production for the entire operations stage. A loss of single harvest season for approximately 6,570 acres would equate to less than 0.3 percent of Washington's annual wheat production.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism are indirect impacts evaluated as part of the analysis from the operation of solar arrays. The presence of photovoltaic panels surrounded by agricultural lands would result in a visual contrast and changes in the landscape setting. The changes to the landscape setting would mainly impact viewing opportunities from within the foreground distance zone. Because no wineries or agritourism businesses are located within the foreground distance zone, operation of the solar arrays would result in negligible, long-term, unlikely, and local impacts on their operations and profitability.

Battery Energy Storage Systems

Agricultural Productivity

Agricultural productivity would be directly impacted by operation of the BESS. The permanent conversion of land as part of the operation of BESS would constitute a negligible, long-term, unavoidable, limited to regional impact on agricultural production in Benton County. Impacts on agricultural activities from the BESS would be similar to those presented for the Project's operations stage under Turbine Option 1. Table 2.1-2 of Chapter 2, Proposed Action and Alternatives, shows that the combined permanent land disturbance from the BESS would be approximately 18 acres.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism are indirect impacts evaluated as part of the analysis from the operation of BESS. Indirect impacts related to operation of the BESS would be similar to those anticipated for the operation of solar arrays.

Substations

Agricultural Productivity

Agricultural productivity would be directly impacted by operation of the substations. The permanent conversion of land as part of the operation of substations would constitute a negligible, long-term, unavoidable, limited to regional impact on agricultural production in Benton County. Impacts on agricultural activities from the substations would be similar to those presented for the Project's operations stage under Turbine Option 1. The conversion of agricultural land for the operation of substations would constitute a low, long-term, probable, confined impact on Benton County's Comprehensive Plan as the amount of agriculturally productive land would be reduced. Table 2.1-2 of Chapter 2, Proposed Action and Alternatives, shows that the combined permanent land disturbance from the BESS would be approximately 18 acres.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism are indirect impacts evaluated as part of the analysis from the operation of BESS. Indirect impacts related to operation of the substations would be similar to those of the proposed solar arrays and BESS.

Comprehensive Project

Agricultural Productivity

Agricultural productivity would be directly impacted by operation of the comprehensive Project. The permanent conversion of land under operation of the comprehensive Project would constitute a low to medium, long-term, unavoidable, limited to regional impact on agricultural production in Benton County. Impacts on agricultural activities from operation of the comprehensive Project would be similar to those presented for Turbine Option 1 and the solar arrays. However, when considering the impact of the comprehensive Project, the possibility for a conflict between the planned management of agricultural activities within the Lease Boundary and Project operations increases when compared with any individual component.

As shown in **Table 4.8-5**, 6,869 acres, or 9 percent, of the Lease Boundary would be permanently impacted by the comprehensive Project. Permanent impacts on land would effectively prevent further agricultural activities on those lands during the Project's operation stage. Of the 9 percent of the Lease Boundary's land that would be permanently impacted by the Project, 6,866 acres—or 99 percent—are currently being managed for agricultural purposes. The magnitude of impact is anticipated to remain low to medium, as the Project's operations would align with agricultural management plans.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by operation of comprehensive Project. Indirect impacts on wineries and agritourism businesses from the comprehensive Project would be similar to those described for Turbine Option 1. Under the comprehensive Project, energy infrastructure would generally dominate the existing landscape character through the introduction of vertical turbines. The greatest visual impacts would occur within the foreground distance zone. However, there are no wineries or agritourism businesses within the foreground distance zone. Visual impacts within the middle ground distance zone would differ based on the location of the viewpoint, surrounding structures and landscape, and location of the Project's visible components. Due to the presence of turbines within the viewshed of wineries and agritourism businesses located in the middle ground distance zone, Turbine Option 1 would have a low, long-term, probable, and local indirect impact on their operations and profitability. The magnitude rating would be potentially reduced for wineries and agritourism businesses whose customer focused experiences are directed away or located within areas that have existing barriers to viewing the Project.

4.8.2.3 Impacts during Decommissioning

Direct Impacts

Project decommissioning would result in temporary land disturbance of a type and magnitude similar to those described for Project construction. Temporarily disturbed lands would be restored to their original condition through grading and planting. Upon decommissioning, land use impacts from facility operations would be largely reversible.

The 2022 ASC states that decommissioning would be performed in accordance with EFSEC rules and prior site certification agreements and include dismantling and removing aboveground improvements, including turbines

and solar modules, step-up transformers, substations, BESS, overhead generator tie lines and support structures, control hardware, and meteorological towers. Foundations would be removed to a level of no less than 3 feet below the surface of the ground unless requested to be maintained by the landowner. In areas where the foundations are removed, the surface would be restored and contoured to a condition reasonably similar to that prior to construction, and the area would be reseeded with vegetation reasonably acceptable to the landowner. Cables, lines, or conduit buried more than 3 feet below grade may not be removed (Horse Heaven Wind Farm, LLC 2022).

Once facilities were removed, acreage taken out of open space and rangeland use could be returned to these prior uses. An exception could be access roads, which local landowners may decide to continue to use and maintain.

Indirect Impacts

Wineries and agritourism would be impacted by decommissioning as heavy equipment would occupy portions of the landscape. The heavy equipment used to dismantle the turbines would contrast with the surrounding landscape as the structures are dismantled and the landscape is revegetated to preconstruction conditions. Once the turbines have been removed and the landscape revegetated, the views of the wineries and agritourism businesses would be restored to preconstruction conditions.

Turbine Option 1

Agricultural Productivity

Agricultural productivity would be directly impacted by decommissioning of Turbine Option 1. It is anticipated that decommissioning under Turbine Option 1 would result in negligible to low, temporary to short-term, unavoidable, and limited to regional impacts. Grazing and farming operations would be impacted by the presence of heavy equipment and construction workers on site and on the connecting roadways. No permanent land use impacts would result from decommissioning of turbines under Turbine Option 1. The Applicant would be required to comply with the decommissioning requirements of the site certification agreement. It is anticipated that most of the permanently disturbed lands would be restored and available for future agricultural use.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by decommissioning of Turbine Option 1. As analyzed in Section 4.10**,** viewpoints and KOPs located within the foreground distance zone would experience the greatest impacts from decommissioning under Turbine Option 1. The decommissioning of access roads, crane paths, collector and communication lines, and wind turbines would be noticeable when viewed within the foreground distance zone. However, there are no wineries or wine-tasting sites within the foreground distance zone. Indirect impacts on wineries and wine-tasting tourism from decommissioning under Turbine Option 1 would be low, short term, feasible, and local.

Turbine Option 2

Agricultural Productivity

Agricultural productivity would be directly impacted by decommissioning of Turbine Option 2. It is anticipated that if Turbine Option 2 were decommissioned, impacts would be negligible to low, temporary to short term, unavoidable, and limited to regional. No permanent land use impacts would result from decommissioning of turbines under Turbine Option 2. The Applicant would be required to comply with the decommissioning

requirements of the site certification agreement. It is anticipated that most of the permanently disturbed lands would be restored and available for future agricultural use.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by decommissioning of Turbine Option 2. Indirect impacts on wineries and agritourism from the decommissioning of Turbine Option 2 would be similar to those under Turbine Option 1.

Solar Arrays

Agricultural Productivity

Agricultural productivity would be directly impacted by solar array decommissioning. Decommissioning of the solar arrays would constitute a low, temporary to short-term, unavoidable, limited to regional impact. Grazing and farming operations would be impacted by the presence of heavy equipment and construction workers on site and connecting roadways. As acreage would have already been taken out of dryland wheat production, it is anticipated that impacts from decommissioning of the solar arrays would be less than those described for construction. No permanent land use impacts would result from decommissioning of the solar arrays. The Applicant would be required to comply with decommissioning requirements of the site certification agreement. It is anticipated that most of the permanently disturbed lands could be restored and available for future agricultural use.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by decommissioning of the solar arrays. Decommissioning of the solar arrays would occur within a smaller, more defined area associated with the selected solar array areas of the Lease Boundary. Decommissioning of the solar arrays would mainly impact viewing opportunities located within the foreground distance zone. Because no wineries or agritourism businesses are located within the foreground distance zone, decommissioning of the solar arrays would result in negligible, short-term, unlikely, and local indirect impacts.

Battery Energy Storage Systems

Agricultural Productivity

Agricultural productivity would be directly impacted by BESS decommissioning. Decommissioning of the BESS would constitute a negligible to low, temporary to short-term, unavoidable, limited to regional impact. Grazing and farming operations would be impacted by the presence of heavy equipment and construction workers on site and on the connecting roadways. No permanent land use impacts would result from decommissioning of the BESS. The Applicant would be required to comply with the decommissioning requirements of the site certification agreement. It is anticipated that most of the permanently disturbed lands could be restored and available for future agricultural use.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by decommissioning of the BESS. Indirect impacts related to decommissioning of the BESS would be similar to those described for the solar arrays.

Substations

Agricultural Productivity

Agricultural productivity would be directly impacted by substation decommissioning. Decommissioning of the substations would constitute a negligible to low, temporary to short-term, unavoidable, limited to regional impact. Grazing and farming operations would be impacted by the presence of heavy equipment and construction workers on site and connecting roadways. No permanent land use impacts would result from decommissioning of the substations. The Applicant would be required to comply with decommissioning requirements of the site certification agreement. It is anticipated that most of the permanently disturbed lands could be restored and available for future agricultural use.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by decommissioning of the substations. Indirect impacts related to decommissioning of the substations would be similar to those described for the solar arrays.

Comprehensive Project

Agricultural Productivity

Agricultural productivity would be directly impacted by decommissioning of the comprehensive Project. Decommissioning of the comprehensive Project would constitute a low, temporary to short-term, unavoidable, limited to regional impact. Grazing and farming operations would be impacted by the presence of heavy equipment and construction workers onsite and on the connecting roadways. As acreage would have already been taken out of dryland wheat production for solar array construction, it is anticipated that impacts from the decommissioning of the comprehensive Project would be less than those described for construction. No permanent land use impacts would result from decommissioning of the comprehensive Project. The Applicant would be required to comply with the decommissioning requirements of the site certification agreement. It is anticipated that most of the permanently disturbed lands could be restored and available for future agricultural use.

Profitability of Wineries and Agritourism

Profitability of wineries and agritourism may be indirectly impacted by decommissioning of the comprehensive Project. The decommissioning and removal of the comprehensive Project would have visual impacts similar to those of the construction stage. The removal of Project components would likely require additional ground disturbance and vegetation clearing, resulting in reclamation efforts. However, over time the landscape impacted by the Project would begin to resemble preconstruction conditions.

During the decommissioning of the comprehensive Project, there would be indirect impacts from decommissioning activities. These decommissioning activities would be related to the removal of wind turbines, solar arrays, the O&M facility, transmission lines, BESS, substations, and other areas disturbed during construction and operation of the Project.

Viewpoints located within the foreground distance zone would experience the greatest impacts from decommissioning of the comprehensive Project. This would particularly occur when a large portion of the viewshed is occupied by the decommissioning of multiple components simultaneously. Because no wineries or agritourism businesses are located within the foreground distance zone, decommissioning of the comprehensive Project would result in low, short-term, feasible, and local indirect impact on the operations and profitability of

wineries and agritourism businesses near the Project. The magnitude rating would be potentially reduced for wineries and agritourism businesses whose customer focused experiences are directed away or located within areas that have existing barriers to viewing the Project. BESS

4.8.2.4 Recommended Mitigation Measures

This section describes the measures that would reduce or compensate for impacts related to land use from construction, operation, and decommissioning of the Project. EFSEC has identified the following mitigation measures for the Project to avoid and/or minimize potential impacts related to Land and Shoreline Use. These measures would be implemented in addition to the setback requirements detailed in Benton County Code 11.17.070 (as presented in Appendix 3.8-1) and compliance with environmental permits, plans, and authorizations required for the Proposed Action.

LSU-1:[42] The Applicant would prepare a livestock management plan with property owners and livestock owners to control the movement of animals within the Lease Boundary during construction, operation and decommissioning.

Rationale: To limit conflicts between the Project and farmers and ranchers.

LSU-2: The Applicant would prepare a dryland farming management plan for construction, operation, and decommissioning that outlines communication requirements between the Certificate Holder and the land owners. The plan would establish work windows that would allow farmers uninterrupted access to their fields for dryland wheat planting and harvesting.

Rationale: To limit conflicts between the Project and farmers and ranchers.

LSU-3: The Applicant would be responsible for ensuring that arrangements for the removal of all livestock have been made during Project construction and decommissioning.

Rationale: To limit conflicts between the Project and farmers and ranchers.

LSU-4: After construction is completed, the Applicant would restore all temporary disturbance areas to their preconstruction status.

Rationale: This measure would allow the areas of temporary disturbance within the Lease Boundary to return to their preconstruction agricultural production levels as soon as possible.

LSU-5: Prior to decommissioning, the Applicant would submit a Detailed Site Restoration Plan, per WAC 463-72-050, for restoring the site to its preconstruction character. The Applicant would be responsible for working with the landowner to return all agricultural land to its preconstruction status. If future site conditions or land ownership no longer allows for the land to be returned to agricultural production, the Applicant would submit a request to EFSEC for an alternative land use that would be in alignment with the Lease Boundary's preconstruction rural character and resource value. If the Detailed Site Restoration Plan requests an alternative land use, EFSEC may require that the Applicant provide additional mitigation to offset impacts from a permanent conversion of the land.

[42] LSU-: Identifier of numbered mitigation item for Land and Shoreline Use

Rationale: This measure would assist in preventing conversion of a land use that is not in alignment with the Lease Boundary's current designation.

4.8.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would occur.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and consider undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[43]

[43] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remain. The additional Applicant commitments identified above do not change the impact ratings previously provided for land and shoreline use in the Draft EIS, and the impact ratings remain the same.

4.8.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn, depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This Environmental Impact Statement weighs the potential impacts on land and shoreline use that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.8-6a, 4.8-6b, and 4.8-6c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to land and shoreline use.

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Table 4.8-6a: Summary of Potential Impacts on Land and Shoreline Use during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Agriculture (Productivity)	Turbine Option 1 Turbine Option 2 BESS Substations	It may be necessary to remove cattle from areas where blasting or heavy equipment operations take place. Project construction could delay agricultural activities for short durations on adjacent properties. Reduced access to fields within the Lease Boundary could impact existing dryland agricultural management programs. Limited but measurable acreage would be taken out of wheat production.	Negligible (farm plan modifications) Low (decreased productivity)	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock	None identified
Agriculture (Productivity)	Solar Arrays	It may be necessary to remove cattle from areas where heavy equipment operations take place. Project construction could delay agricultural activities for short durations on adjacent properties. Reduced access to fields within the Lease Boundary could impact existing dryland agricultural management programs. Temporarily and permanently impacted dryland agricultural acreage from solar array construction would equate to approximately 0.3% of the state's annual wheat production.	Low	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock	None identified
Agriculture (Productivity)	**Comprehensive Project**	Similar to Turbine Option 1 and solar arrays	Low (decreased productivity) Medium (operational changes)	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock	None identified
Wineries and agritourism (Profitability)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Wineries and agritourism businesses could be impacted from changes in general environmental settings through potential changes in viewing opportunities.	Low	Short Term	Feasible	Local	No mitigation identified	None identified
Wineries and agritourism (Profitability)	Solar Arrays BESS Substations	The construction of the solar arrays would occur within a smaller, more defined area associated with the selected solar array site, resulting in negligible impacts.	Negligible	Short Term	Unlikely	Local	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.8-6b: Summary of Potential Impacts on Land and Shoreline Use during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Agriculture (Productivity)	Turbine Option 1 Turbine Option 2 BESS Substations	Although livestock would be able to graze up to turbines and associated structures, limited but measurable acreage would remain out of agricultural production.	Negligible	Long Term	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan	None identified
Agriculture (Productivity)	Solar Arrays	Exclusionary fencing would be installed around the solar arrays. Exclusionary fencing would prevent the solar array areas from being used for agricultural activities throughout the Project's operations stage. The loss of available farmland would result in a reduction in dryland wheat production and, potentially, a loss in grazing areas for livestock.	Low	Long Term	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan	None identified
Agriculture (Productivity)	**Comprehensive Project**	Impacts on agricultural activities from operation of the comprehensive Project would be similar to those presented for Turbine Option 1 and the solar arrays. However, when considering the impact of the comprehensive Project, the possibility for a conflict between the planned management of agricultural activities within the Lease Boundary and Project operations increases when compared with any individual component.	Low (decreased productivity) Medium (operational changes)	Long Term	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan	None identified
Wineries and agritourism (Profitability)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Changes in landscape character through the introduction of turbines that could be seen from wineries and agritourism businesses would indirectly impact wine-tasting tourism.	Low	Long Term	Probable	Local	**VIS-1–VIS-9** For details on these mitigation measures, refer to Section 4.10	None identified
Wineries and agritourism (Profitability)	Solar Arrays BESS Substations	The conversion of existing agricultural lands to energy infrastructure would result in visual contrast and changes in the landscape setting. Due to the location of the solar arrays, BESS, and substations, the changes may not be visible from the wineries and agritourism businesses.	Negligible	Long Term	Unlikely	Local	**VIS-1–VIS-9** For details on these mitigation measures, refer to Section 4.10	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
ASC = Application for Site Certification; BESS = battery energy storage system; EFSEC = Washington Energy Site Evaluation Council

Table 4.8-6c: Summary of Potential Impacts on Land and Shoreline Use during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Agriculture (Productivity)	Turbine Option 1 Turbine Option 2 BESS Substations	Similar to the construction stage	Negligible (farm plan modifications) Low (decrease productivity)	Temporary (brief access modifications) Short Term (seasonal restrictions	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock **LSU-4:** Confirm that site restoration activities are in alignment with the Applicant's decommissioning plan **LSU-5:** Requirements for requesting an alternative land use as part of decommissioning	None identified
Agriculture (Productivity)	Solar Arrays **Comprehensive Project**	Impacts would be less than those described for the construction stage as dryland wheat production located within the solar array area would have previously been taken out of management.	Low	Temporary (brief access modifications) Short Term (seasonal restrictions)	Unavoidable	Limited (small area) Regional (decreased productivity)	**LSU-1:** The Applicant would prepare a livestock management plan **LSU-2:** The Applicant would prepare a dryland farming management plan **LSU-3:** Arrange for the removal of livestock **LSU-4**: Confirm that site restoration activities are in alignment with the Applicant's decommissioning plan **LSU-5:** Requirements for requesting an alternative land use as part of decommissioning	None identified
Wineries and agritourism (Profitability)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Decommissioning of access roads, crane paths, collector and communication lines, and wind turbines could impact viewing opportunities from wine-tasting sites and as result wine-tasting tourism.	Low	Short Term	Feasible	Local	No mitigation identified	None identified
Wineries and agritourism (Profitability)	Solar Arrays BESS Substations	Decommissioning of the solar arrays, BESS, and substations could impact viewing opportunities from the wineries and agritourism businesses as decommissioning activities occur within the viewshed.	Negligible	Short Term	Unlikely	Local	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system

4.8.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to land use from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.9 Historic and Cultural Resources

This section evaluates the impacts on historic and cultural resources within the Area of Analysis that could result from the proposed Horse Heaven Wind Farm (Project, or Proposed Action). The Area of Analysis comprises land within the Horse Heaven Wind Farm, LLC's (Applicant's) Lease Boundary totaling 72,428 acres and includes the proposed Wind Energy Micrositing Corridor of approximately 11,850 acres (of predominantly linear features, including the turbines, support infrastructure, etc.) and the Solar Siting Areas, which encompass approximately 10,755 acres (Horse Heaven Wind Farm, LLC 2022: p. 2-1). The historic and cultural resources considered as part of this assessment include archaeological resources,[44] architectural resources, and traditional cultural properties (TCPs), as identified in Section 3.9.

Under the Washington State Environmental Policy Act (SEPA), this Environmental Impact Statement (EIS) weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors when evaluating potential impacts (WAC 197-11-330 and WAC 197-11-794). These impacts were qualitatively assessed based on the method of analysis described in Section 4.9.1 below. Additionally, the qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and summarized in **Table 4.9-1**. Although the use of the impact scale and a qualitative assessment of impacts is not typical for historic and cultural resources, this EIS is intended to comply with SEPA requirements.

4.9.1 Method of Analysis

Potential impacts on historic and cultural resources are considered during the following Project stages:

- Project construction
- Project operation
- Project decommissioning

The Project includes several subcomponents—wind turbines within the Micrositing Corridor, solar arrays, and substations and associated battery energy storage systems (BESS). Potential impacts from the subcomponents are assessed separately below.

- **Wind Turbines.** For the wind turbine portion of the Project, the Applicant is considering multiple turbine sites. According to the information provided by the Applicant to date, it is expected that the Project's impacts on historic and cultural resources would be similar for Turbine Option 1 and Turbine Option 2, though it is recognized that the proposed turbine locations would differ in impact. For this reason, Turbine Options 1 and 2 were assessed the same, with the assumption of the highest potential impact from either option. As the final Project design and layout are still under development, potential impacts are considered to occur throughout the Micrositing Corridor.
- **Solar Arrays.** Three Solar Siting Areas are considered for the proposed placement of the solar arrays:
  - East Solar / Bofer Canyon
  - West Solar 1 / County Well Road

[44] To avoid confusion between historic-period archaeological resources and historic archaeological resources, this document does not use the latter term. Any NRHP-listed or eligible properties should be understood to be historic archaeological resources, per WAC 25-48-020(11).

  - West Solar 2 / Sellards Road

  At this stage of the Project design, and to aid future refinement, impacts are considered to occur throughout these defined areas (rather than in discrete portions of each area).

- **BESS and Associated Substations.** The substations and adjacent BESS are subcomponents at six proposed locations:
  - HH-East Substation
  - HH-West Intermediate Substation (Primary – Badger Canyon Road)
  - HH-West Intermediate Substation (Alternate – County Well Road)
  - HH-West Step-Up Substation 500 kV (Primary – Sellards Road)
  - HH-West Step-Up Substation 500 kV (Alternate – County Well Road)
  - HH-West Alternate Solar Substation

  Due to their adjacency, the impacts of the substations and BESS on historic and cultural resources are assessed together for each Project stage.

This evaluation of potential interactions between Project subcomponents and activities and the historic and cultural resources in the Area of Analysis relies primarily on information provided in the Application for Site Certification (ASC) for the Project (Horse Heaven Wind Farm, LLC 2022) and Section 2.1 of this EIS. Information on the historic and cultural resources located in the Project Lease Boundary vicinity was gathered during cultural resource surveys conducted by the Applicant's cultural resource consultant, Historical Research Associates, Inc. (HRA). This information is summarized in Section 3.9 and includes the historic and cultural resource types, their eligibility for listing in the National Register of Historic Places (NRHP) as appropriate, and the regulatory context for the identification and protection of historic and cultural resources. Section 3.9 also includes recommendations made by HRA for avoidance of, and potential Project impacts on, historic and cultural resources, as well as a summary of consultation between the Washington Energy Facility Site Evaluation Council (EFSEC) and the Washington Department of Archaeology and Historic Preservation (DAHP).

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize Project impacts on historic and cultural resources, and these are outlined in the Final ASC (Horse Heaven Wind Farm, LLC 2023). Measures proposed by the Applicant are:

- Cultural Resource Worker Education/Training
- Preconstruction Survey and Cultural Resource Avoidance Plan
- Inadvertent Discovery of Archaeological Resources during Construction Plan

Applicant Commitments have been taken into consideration in the characterization of potential impacts on historic and cultural resources in Section 4.9.2. Commitments proposed by the Applicant are discussed in Section 2.1.3.11 and summarized below.

Cultural Resource Worker Education/Training

The Applicant would retain a qualified archaeologist to provide a cultural resource briefing prior to construction. The briefing would include an explanation of all applicable laws and penalties pertaining to disturbance(s) to cultural resources. The briefing would summarize the regional context for historic and cultural resources, the archaeological sensitivity of the area, and types of historic and cultural resources found in the area. The briefing would instruct Project personnel to halt construction in the event of an inadvertent discovery of historic and cultural resources during construction. Inadvertent discovery procedures including appropriate treatment and respectful behavior of an inadvertent discovery are discussed under Inadvertent Discovery Plan, below.

If requested, a Tribal representative(s) shall be invited to participate in the cultural resource briefing. The Tribal representative(s) could discuss historic and cultural resources within the region and/or provide text from a Tribal perspective regarding such resources (Horse Heaven Wind Farm, LLC 2023: p. 4-156 to 4-157).

Preconstruction Survey and Cultural Resource Avoidance Plan

The Applicant would retain a qualified archaeologist to prepare and implement a Cultural Resource Preconstruction Survey and Avoidance Plan. The plan would provide protocols for preconstruction survey(s) of areas that have not been previously surveyed, including, but not limited to, areas added as a result of final design or construction needs.

The Cultural Resource Avoidance Plan, described in detail below, would be implemented to avoid known historic and cultural resources. Tribal representatives would also be invited to monitor Project-related construction activities. The Applicant's consultant, Historical Research Associates, Inc. (HRA), submitted a draft Cultural Resources Monitoring Plan in May 2023 (Davis and Ragsdale 2023a).

A Archaeological Excavation and Removal Permit is required for any alteration to any precontact archaeological site regardless of the level of disturbance. For historic-period archaeological sites, permits are only required for removal or excavation of sites that are unevaluated for, eligible for, or listed in the NRHP.

Cultural Resource Avoidance Plan

The Cultural Resource Avoidance Plan would outline avoidance measures for historic and cultural resources. Historic and cultural resources identified within the Lease Boundary would be avoided by the Project through modification of Project design. Avoidance measures would also include construction buffers, protective signage or flagging, and cultural resource monitoring. HRA submitted a draft Cultural Resources Monitoring Plan to the Applicant in May 2023 (Davis and Ragsdale 2023a).

Resource boundaries for precontact resources identified within the Lease Boundary include a 66-foot (-meter) buffer for Sites **45BN261** and **45BN2090** and a 33-foot (10-meter) buffer for isolates **45BN2092** and **45BN2146** and multicomponent site **45BN2153**. If a resource cannot be avoided, a qualified archaeologist would coordinate with DAHP and the Tribes regarding additional archaeological investigation and/or mitigation measures, as appropriate.

Inadvertent Discovery of Archaeological Resources During Construction Plan

The Applicant would retain a qualified archaeologist to prepare an IDP prior to ground-disturbing activities. In the event of an inadvertent discovery during Project construction, all activity in the vicinity of the find would stop and a qualified archaeologist would be contacted to evaluate the eligibility of the resource for listing in NRHP (for historic-period resources) or to conduct other appropriate investigations per RCW 27.53 (for precontact resources). A DAHP-issued archaeological permit would be obtained, if necessary, for any archaeological

investigations of inadvertent discoveries. For any NRHP-eligible historic-period archaeological resources, and all precontact archaeological resources, the archaeologist would coordinate with the implementing agencies, the Washington Department of Natural Resources (where appropriate), and affected Tribes to formulate avoidance measures, archaeological data recovery, and/or appropriate measures (Davis and Ragsdale 2023b).

If evidence of human burials is encountered, all ground-disturbing activity in the vicinity would be halted immediately. No work would resume within an IDP-defined buffer with no less than a 98-foot (30-meter) radius until all appropriate approvals had been received. Inadvertent discoveries of human skeletal remains are subject to the procedures for notification and disturbance required by RCW 68.60.055. HRA submitted a draft IDP to the Applicant in May 2023 (Davis and Ragsdale 2023b).).

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.9.2.5, Post-Adjudication Applicant Commitments.

Avoidance of historic and cultural resources is the preferred course of action. RCW 27.44 forbids disturbance of Native American burial sites, and RCW 27.53.060 requires permits from DAHP before disturbance of archaeological resources (see Section 3.9).

The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and shown in **Table 4.9-1**. The impact scale was developed for this EIS, and it is not based on a published source. The impact scale provides a standardized approach to assess significant impacts across all resource topics for the Project. The following was developed to assist EFSEC in their determination of significance and to contextualize the impact scale within state cultural resource laws (Revised Code of Washington [RCW] 27.53) and SEPA rules (WAC 197-11-080).

Impact ratings were assessed conservatively due to the nature of historic and cultural resources, which are finite and irreplaceable. In addition, eligibility for listing in the NRHP has not been evaluated for several historic and cultural resources in the Area of Analysis. The conservative approach to impact ratings conforms with WAC 197-11-080 (SEPA rules: Incomplete or unavailable information), which stipulates that if information on significant adverse impacts is unavailable, the lead agency under SEPA shall proceed with a worst-case analysis.

Table 4.9-1: Impact Rating Scale from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

The qualitative rating system described in Section 4.1 was used to assess the extent of Project-related impacts on historic and cultural resources according to the following attributes:

- **Magnitude** – Would the impact result in a direct or indirect alteration to the characteristics that would qualify the resource for inclusion in the NRHP? What is the resource sensitivity? Are Project-related impacts on historic and cultural resources negligible, low, medium, or high in terms of their severity?
- **Duration** – Is the impact temporary, short term, long term, or constant? Some impacts (e.g., removal or destruction) on resources would be irreversible and therefore, in this analysis, constant.
- **Likelihood** – Are the potential impacts on historic and cultural resources unlikely, feasible, probable, or inevitable? When the intent of the Applicant's Cultural Resource Avoidance Plan is to avoid the identified resource, likelihood is assessed as unlikely. If there is the potential for the environmental setting of a culturally sensitive resource to be adversely affected (e.g., noise, vibration, and visual interferences) regardless of avoidance through the Applicant's Cultural Resource Avoidance Plan, the likelihood will be assessed as appropriate.
- **Spatial Extent** – Are impacts potentially confined to a small area (i.e., a single archaeological resource), or do they extend beyond the local area to viewsheds beyond the Lease Boundary?

As identified in **Table 4.9-2**, the magnitude of an impact is determined based on adverse effects on the historic and cultural resources and the sensitivity of the resources.

Table 4.9-2: Criteria for Assessing Magnitude of Impacts on Cultural and Historic Resources

Magnitude of Impacts	Description
Negligible	**Adverse Effects:** No adverse effects on impacted resources. **Resource Sensitivity:** Impacted resources are either historic-period archaeological resources or architectural resources, and impacted resources have been determined not eligible for the NRHP.
Low	**Adverse Effects:** Adverse effects on impacted resources are unlikely. **Resource Sensitivity:** Impacted resources are NRHP-eligible architectural resources that DAHP believes will not be physically impacted by the Project.
Medium	**Adverse Effects:** Potential for adverse effects on impacted resources. **Resource Sensitivity:** Impacted resources are historic-period archaeological sites that have not been evaluated for the NRHP.
High	**Adverse Effects:** Adverse effects on impacted resources. **Resource Sensitivity:** Impacted resources are either precontact archaeological resources (sites and isolates), NRHP-eligible historic-period archaeological resources, TCPs, or unidentified historic and cultural resources

DAHP = Washington State Department of Archaeology and Historic Preservation; NRHP = National Register of Historic Places; TCP = traditional cultural property

Adverse effects consist of direct or indirect alteration of the characteristics that would render a resource eligible for inclusion in the NRHP. Eligibility is based on significance under one or more of four criteria established by the National Historic Preservation Act. To be eligible, a resource must also possess integrity (NPS 1997; Hardesty and Little 2000) (see Section 3.9).

This EIS considers all potential impacts that could have adverse effects, in line with guidance provided by the Advisory Council on Historic Properties (2019), including:

- Direct effects, which result from an immediate interaction between a planned Project activity and the receiving receptors, free from extraneous influence, (i.e., partial or complete destruction of an archaeological feature or cultural site, changes to viewshed, or loss of access to TCPs).
- Indirect effects, which are secondary, occurring later in time or farther from the activity causing the interaction (i.e., mitigation measures installed for a different impact affecting historic and cultural resources).

Adverse effects are considered with respect to the eligibility of historic and cultural resources for the NRHP. Precontact archaeological isolates and TCPs may not have been evaluated for the NRHP and thus not subject to the magnitude criteria for adverse effects. However, DAHP and the Confederated Tribes and Bands of the Yakama Nation [Yakama Nation] have requested avoidance and/or additional measures for such historic and cultural resources. Conversely, some NRHP-eligible resources, such as architectural resources, may not be impacted by the Project. Therefore, resource sensitivity is also considered when assessing the magnitude of impacts. Resource sensitivity is based on NRHP eligibility, Washington State regulations on historic and cultural

resources, DAHP consultation, and/or coordination with the Tribes.[45] For the intent of this analysis, resource sensitivity takes into account that:

- DAHP has stated that architectural resources identified within the Area of Analysis will not be physically impacted by the Project. Pending changes to the Project's scope of work, DAHP has no concerns regarding architectural resources within the Area of Analysis (Hanson 2021b).
- RCW 27.53 protects historic-period archaeological sites that are eligible or unevaluated for the NRHP, as well as all precontact archaeological sites, regardless of NRHP eligibility. Disturbance to such archaeological resources requires a DAHP-issued permit.
- The Yakama Nation has requested avoidance of all archaeological resources, particularly precontact archaeological isolates, which are not protected under RCW 27.53. DAHP has recommended avoidance of precontact isolates (Hanson 2021a, 2021b).
- Information on TCPs within the Area of Analysis is limited or confidential.
- The Yakama Nation has requested the protection, preservation, and perpetuation of TCPs and archaeological resources.
- Archaeological surveys have been conducted within the Area of Analysis. However, no archaeological survey is fully comprehensive. For this reason, unidentified historic and cultural resources may exist within the Area of Analysis.

In terms of significant impacts on historic and cultural resources, the worst-case scenario would be their loss through destruction or irreparable damage because such resources cannot be moved, reproduced, or replaced. To conform with the conservative approach required by WAC 197-11-080, all TCPs have a high magnitude rating because the potential for significant impacts on these resources is unknown, requiring a worst-case analysis.[46] Unidentified historic and cultural resources have an elevated resource sensitivity, and therefore a high magnitude rating, due to the potential severity of their loss.

4.9.2 Impacts of Proposed Action

4.9.2.1 Impacts during Construction

Impacts on historic and cultural resources are anticipated during construction of turbines, solar arrays, substations and BESS, and the comprehensive Project. The magnitude of impacts could range from negligible to high, based on the resource sensitivity and the extent of adverse effects, both direct and indirect, on historic and cultural resources (see 4.9.1 Method of Analysis). For impacts during construction, resource sensitivity is of highest concern for precontact archaeological resources (sites and isolates), TCPs, and unidentified historic and cultural resources.

The magnitude of the impacts discussed below would be medium or high if the impacts destroyed or diminished the integrity of a resource (adverse effects). Specifically, impacts to the location, setting, feeling, and/or

[45] The use of "Tribes" in this context is inclusive of the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Wanapum Tribe.

[46] Continued conversations with the affected Tribes (Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Wanapum Tribe) could provide more detailed information about potential significant impacts on TCPs. Ongoing engagement regarding potential significant impacts may provide mitigation measures to employ for TCPs. The impact significance rating may change as a result of continued engagement with the Tribes.

association of a resource through changes to baseline environmental conditions (noise, dust, vegetation, etc.) could adversely affect its integrity. Restriction of access to TCPs could result in a high-magnitude impact. Viewshed alterations through the construction of turbines and/or the use of large equipment and heavy machinery could result in high-magnitude impacts on TCPs. Viewsheds are analyzed in Section 4.10 of this EIS and include key observation points identified by the Yakama Nation for analysis.

Turbine Option and Turbine Option 2

Impacts on historic and cultural resources from the construction of turbines and associated supporting infrastructure would occur within the Micrositing Corridor. Impacts may result in the destruction of or damage to historic and cultural resources through ground disturbance and physical alteration. Activities with such impacts include:

- Surface grading
- Surface clearance
- Construction of access roads, turnaround areas, and laydown areas
- Construction of tower foundations
- Construction of supporting infrastructure (e.g., meteorological stations, transformers, and underground cables)

Impacts from turbine construction activities associated with noise, vibration, visual interferences, and restriction of access could have adverse effects on historic and cultural resources through a loss or diminishment of integrity. Activities with such impacts include:

- Construction traffic that creates or exacerbates noise
- Construction traffic that creates or exacerbates dust
- Vegetation clearance
- Fencing
- Land acquisition
- Erection of turbines
- Use of large equipment and heavy machinery

A total of 28 historic and cultural resources have been identified within the Micrositing Corridor, including 21 archaeological resources and seven architectural resources (Section 3.9) (Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021).[47] In addition, discussions with the affected Tribes have identified TCPs within or near the Micrositing Corridor (Section 3.9). The Cultural Resource Avoidance Plan and the Inadvertent Discovery Plan (IDP) for

[47] Horse Heaven Wind Farm, LLC (2022: p. 4-157, Table 4.2.5-3. HRA Recommendations for Archaeological Resources within the Project) erroneously reports that all 41 archaeological resources are located within the Micrositing Corridor. This Final EIS presents the correct information regarding historic and cultural resources identified within the Area of Analysis by HRA (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2020, 2021; Davis, Jones, et al. 2021; Davis, Tuck, et al. 2021; Tuck et al. 2023).

historic and cultural resources are discussed in Section 4.9.2. A summary of potential impacts on historic and cultural resources during turbine construction is presented in **Table 4.9-3**.

Four precontact-period archaeological resources have been identified within the Micrositing Corridor (**Table 4.9-3**):

- **45BN261** (Precontact archaeological site)
- **45BN2090** (Precontact archaeological site)
- **45BN2092** (Precontact archaeological isolate)
- **45BN2153** (Precontact component of archaeological site)

Per RCW 27.53, precontact archaeological Sites **45BN261** and **45BN2090** and the precontact component at Site **45BN2153** require a permit issued by DAHP prior to disturbance. Although RCW 27.53.060 does not protect precontact isolate **45BN2092**, the Yakama Nation has requested avoidance of this resource. In addition, DAHP has recommended avoidance of precontact archaeological isolates (Hanson 2021b). Given the resource sensitivity of precontact archaeological resources, the magnitude of impacts on these resources would be high. The duration of impact would be constant beyond the life of the Project. The likelihood of impacts on precontact archaeological resources within the Micrositing Corridor is rated as unlikely, given the Cultural Resource Avoidance Plan. The spatial extent would be confined.

Ten historic-period archaeological resources (sites and isolates) and three architectural resources in the Micrositing Corridor have been determined not eligible for the NRHP (**Table 4.9-3**). Avoidance of the 10 historic-period archaeological resources is not required by DAHP. DAHP stated that the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b). For all historic and cultural resources determined not eligible for the NRHP, the magnitude of impact would be negligible. The impact duration would be constant beyond the life of the Project. The likelihood of impacts on these resources is probable. The spatial extent of impacts would be confined for the historic-period archaeological resources and local for the architectural resources.

Eleven historic-period archaeological sites and the historic component of one multicomponent archaeological site in the Micrositing Corridor are unevaluated for listing in the NRHP (**Table 4.9-3**). The magnitude of impact on these resources is high due to the potential for adverse effects (direct and indirect) as well as the resource sensitivity. With the Applicant's stated intent for the Cultural Resource Avoidance Plan being to avoid identified resources, the likelihood of impacts from turbine construction is considered unlikely. If impacts were to occur, the duration would be constant beyond the life of the Project, and the spatial extent would be confined.

Four architectural resources within the Micrositing Corridor have been determined eligible for the NRHP (**Table 4.9-3**):

- **721666** (McNary–Franklin No. 2 Transmission Line)
- **722995** (Grain elevator)
- **724937** (Nicoson Road Farmstead Barn Storage Building)
- **724938** (Nicoson Road Farmstead Cribbed Grain Elevator)

DAHP has stated that the Project would not physically impact any identified architectural resources and, as such, DAHP has no concerns about architectural resources (Hanson 2021b). DAHP requested notice should the Project scope of work include physical impacts to any of the identified architectural resources (Hanson 2021b). Based on DAHP's review, the magnitude of impacts for the four NRHP-eligible architectural resources within the Micrositing Corridor would be negligible. Impacts from noise, dust, and use of large equipment and heavy machinery would have short-term duration. Impacts from the construction of turbines would be constant beyond the life of the Project due to the effect of the turbines on the viewshed of the architectural resources. For all impacts, the likelihood would be unlikely, and the spatial extent would be regional.

If any physical alterations did occur to the four NRHP-eligible architectural resources, the magnitude of impact would be high, and the duration would be constant beyond the life of the Project. With the Project's scope of work, impacts would be unlikely. The spatial extent/setting of such impacts would be regional (see **Table 4.9-3**).

For unidentified historic and cultural resources within the Micrositing Corridor, impacts would be high in magnitude, in compliance with the worst-case analysis stipulated by WAC 197-11-080. Impacts would be constant in duration, and feasible in terms of their likelihood. Spatial extent is assumed to be local because unidentified historic and cultural resources adjacent to the proposed Lease Boundary could be impacted.

The presence of TCPs within the Lease Boundary has been confirmed through coordination with the Tribes. Information on the presence and location of TCPs within the Micrositing Corridor, specifically limited and confidential. In compliance with the worst-case analysis stipulated by WAC 197-11-080, the magnitude of impact on TCPs within the Micrositing Corridor would be high. Impact duration would be short term for noise, dust, and use of large equipment and heavy machinery. The construction of turbines and fencing and the acquisition of land would have a constant impact on TCPs due to effects on viewsheds, access, and destruction of the resources themselves. The likelihood of impacts is rated as unavoidable, given that TCPs are known to exist within the Lease Boundary. The spatial extent of impacts on TCPs would be regional.

Table 4.9-3: Potential Impacts from Turbine Construction

Resource Sensitivity	Resource Type	Resource ID	Potential Impact(s) and Applicant Commitments	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
DAHP-issued permit required prior to disturbance	Archaeological Resources: Precontact or multicomponent sites	▪ 45BN261 ▪ 45BN2090 ▪ 45BN2153 (Precontact component)	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	High	Constant	unavoidable	Confined
Avoidance requested and recommended	Archaeological Resources: Precontact isolate	▪ 45BN2092	Destruction of or damage to resource through ground disturbance and physical alteration; adverse effects on resource through a loss or diminishment of integrity Resource to be avoided through application of the Cultural Resource Avoidance Plan	High	Constant	Unlikely	Confined
Determined Not Eligible for the NRHP	Archaeological Resources ▪ : Historic Isolates and Sites-period archaeological sites or isolates	▪ 45BN2081 ▪ 45BN2082 ▪ 45BN2083 ▪ 45BN2084 ▪ 45BN2091 ▪ 45BN2150 ▪ 45BN2163 ▪ 45BN2086 ▪ 45BN2088 ▪ 45BN2093	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined
Determined not eligible for the NRHP	Architectural Resources	▪ 667765 (Nine Canyon Road) ▪ 721665 (McNary–Badger Canyon No. 1 Transmission Line) ▪ 722996 (147407 E. Beck Road Residence)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Local
Unevaluated for the NRHP	Archaeological Resources: Historic-period archaeological sites	▪ 45BN2085 ▪ 45BN2087 ▪ 45BN2089 ▪ 45BN2086 ▪ 45BN2148 ▪ 45BN2149 ▪ 45BN2088 ▪ 45BN2151 ▪ 45BN2152 ▪ 45BN2153 (Historic component) ▪ 45BN2093	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	Medium	Constant	Unlikely	Confined

Table 4.9-3: Potential Impacts from Turbine Construction

Resource Sensitivity	Resource Type	Resource ID	Potential Impact(s) and Applicant Commitments	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
Determined eligible for the NRHP	Architectural Resources	▪ 721666 (McNary–Franklin No. 2 Transmission Line) ▪ 722995 (Grain elevator) ▪ 724937 (Nicoson Road Farmstead Barn Storage Building) ▪ 724938 (Nicoson Road Farmstead Cribbed Grain Elevator)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Unlikely	Regional
Determined eligible for the NRHP	Architectural Resources	▪ 721666 (McNary–Franklin No. 2 Transmission Line) ▪ 722995 (Grain elevator) ▪ 724937 (Nicoson Road Farmstead Barn Storage Building) ▪ 724938 (Nicoson Road Farmstead Cribbed Grain Elevator)	Physical impacts	High	Constant	Unlikely	Regional
Unidentified historic and cultural resources	Archaeological Resources and Architectural Resources	N/A	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Implementation of IDP in event of resource discovery	High	Constant	Feasible	Local
Traditional Cultural Properties	Traditional Cultural Properties: ▪ Places of cultural, religious and historical significance ▪ Burial sites ▪ Ancestral burial grounds ▪ First Foods ▪ Viewsheds ▪ Cultural landscapes and trails	N/A	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference	High	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from construction of turbines and fencing and the acquisition of land	Unavoidable	Regional

DAHP = Washington Department of Archaeology and Historic Preservation; ID = identification; IDP = Inadvertent Discovery Plan; N/A = not applicable; NRHP = National Register of Historic Places

Solar Arrays

The solar arrays are proposed over three areas. The Project activities pertaining to each area are similar, though the resources impacted vary according to each proposed area, as detailed in **Table 4.9-4**.

Impacts on historic and cultural resources from the construction of the solar arrays and associated supporting infrastructure would occur within the Solar Siting Areas. Impacts may result in the destruction of or damage to historic and cultural resources through ground disturbance and physical alteration. Activities with such impacts include:

- Surface leveling and clearance
- Construction of access roads, turnaround areas, and laydown areas
- Construction of the solar tracking system, supporting subsurface cables and connections
- Installation of underground cables/grid connections

Impacts from noise, vibration, visual interferences, and restriction of access could have adverse effects on historic and cultural resources through a loss or diminishment of integrity. Activities with such impacts include:

- Construction of solar modules that creates visual interference
- Construction traffic that creates or exacerbates noise
- Construction traffic that creates or exacerbates dust
- Vegetation clearance
- Security fencing to enclose Solar Siting Area(s)

Twenty-seven historic and cultural resources have been identified within the proposed Solar Siting Areas, including 20 archaeological resources and seven architectural resources (Section 3.9) (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2021; Davis, Tuck, et al. 2021). In addition, discussions with the affected Tribes have identified TCPs within or near the Solar Siting Areas (Section 3.9). The Cultural Resource Avoidance Plan and the IDP for historic and cultural resources are discussed in Section 4.9.2. A summary of potential impacts on historic and cultural resources during solar array construction is presented in **Table 4.9-4**.

East Solar Area (Bofer Canyon)

Twelve historic and cultural resources have been identified in the construction area for the East Solar array, including nine historic-period archaeological sites and three architectural resources (**Table 4.9-4**).

Two historic-period archaeological isolates (**45BN2138** and **45BN2155**), two historic-period archaeological sites (**45BN2139** and **45BN2156**), and two architectural resources (**721665** and **722996**) have been determined not eligible for listing on the NRHP (WISAARD 2022d, 2023a). Avoidance of the four archaeological resources is not required by DAHP. DAHP stated that the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b). For all historic and cultural resources determined not eligible for the NRHP, the magnitude of impact would be negligible. The impact duration would be constant beyond the life of the Project. The likelihood of impacts on these resources is probable. The spatial extent of impacts would be confined for the historic-period archaeological resources and local for the architectural resources.

Five historic-period archaeological sites are unevaluated for listing in the NRHP (**45BN205**, **45BN2140**, **45BN2141**, **45BN2142**, and **45BN2154**). The magnitude of impact on these resources is medium due to the potential for adverse effects (direct and indirect), as well as the resource sensitivity. With the Cultural Resource Avoidance Plan, the likelihood of impacts from turbine construction is rated as unlikely. If impacts were to occur, the duration would be constant beyond the life of the Project and the spatial extent would be confined.

One architectural resource (**721666**) has been determined eligible for the NRHP. DAHP has stated that the Project would not physically impact any identified architectural resources and, as such, DAHP has no concerns about architectural resources (Hanson 2021b). DAHP requested notice should the Project scope of work include physical impacts to any of the identified architectural resources (Hanson 2021b). Based on DAHP's review, the magnitude of impacts for architectural resource **721666** would be negligible. Impacts from noise, dust, and use of large equipment and heavy machinery would have short term duration. Impacts from the construction of turbines would be constant beyond the life of the Project due to the effect of the turbines on the viewshed of the architectural resource. For all impacts, the likelihood would be unlikely, and the spatial extent would be regional.

If any physical alterations to architectural resource **721666** did occur, the magnitude of impact would be high, and the duration would be constant beyond the life of the Project. With the Project's scope of work, impacts would be unlikely. The spatial extent/setting of such impacts would be regional (see **Table 4.9-4**).

West Solar Area 1 (County Well Road)

Ten historic and cultural resources have been identified in the West Solar Area 1 location, including six archaeological resources and four architectural resources (**Table 4.9-4**).

Precontact isolate **45BN2146** is not protected by RCW 27.53.060. However, the Yakama Nation has requested avoidance of this resource. In addition, DAHP has recommended avoidance of precontact archaeological isolates (Hanson 2021b). The magnitude of impacts to **45BN2146** would be high. The duration of impact would be constant beyond the life of the Project. The likelihood of impacts on this precontact archaeological resource is unlikely, given the Cultural Resource Avoidance Plan. The spatial extent would be confined.

One historic-period archaeological isolate (**45BN2144**), two historic-period archaeological sites (**45BN2157** and **45BN2158**), and four architectural resources (**724939**, **724940**, **724941**, and **724942**) associated with the 17302 County Well Road farmstead cluster have been determined not eligible for the NRHP (**Table 4.9-4**). Avoidance of the three archaeological resources is not required by DAHP. DAHP stated that the Project would not physically impact any identified architectural resources and, as such, DAHP has no concerns about architectural resources (Hanson 2021b). For all historic and cultural resources determined not eligible for the NRHP, the magnitude of impact would be negligible. The impact duration would be constant beyond the life of the Project. The likelihood of impacts on these resources is probable. The spatial extent of impacts would be confined for the historic-period archaeological resources and local for the architectural resources.

Two historic-period archaeological sites (**45BN2143** and **45BN2145**) are unevaluated for the NRHP. The magnitude of impact on these resources is medium due to the potential for adverse effects (direct and indirect) as well as the resource sensitivity. With the Cultural Resource Avoidance Plan, the likelihood of impacts from turbine construction is considered unlikely. If impacts were to occur, the duration would be constant beyond the life of the Project and the spatial extent would be confined.

West Solar Area 2 (Sellards Road)

Five historic-period archaeological sites (**45BN2147**, **45BN2159**, **45BN2160**, **45BN2161**, and **45BN2162**) have been identified in West Solar Area 2 (Sellards Road) (**Table 4.9-4**). All five are unevaluated for the NRHP. The magnitude of impact on these resources is medium due to the potential for adverse effects (direct and indirect), as well as the resource sensitivity. With the Cultural Resource Avoidance Plan, the likelihood of impacts from turbine construction is considered unlikely. If impacts were to occur, the duration would be constant beyond the life of the Project and the spatial extent would be confined.

All Solar Siting Areas

Resource sensitivity for unidentified historic and cultural resources across all Solar Siting Areas is of highest concern. The IDP would be implemented in the event that previously unidentified resources were discovered during construction. For unidentified historic and cultural resources across all solar siting construction areas, impacts would be high in magnitude, in compliance with the worst-case analysis stipulated by WAC 197-11-080. Impacts would be constant in duration, and feasible in terms of their likelihood. Spatial extent is assumed to be local because unidentified historic and cultural resources adjacent to the proposed Lease Boundary could be impacted.

The presence of TCPs within the Lease Boundary has been confirmed through coordination with the Tribes. Information on the presence and location of TCPs across all Solar Siting Areas, specifically, is limited and confidential. In compliance with the worst-case analysis stipulated by WAC 197-11-080, the magnitude of impact on TCPs across all solar siting construction areas would be high. Impact duration would be short term for noise, dust, and use of large equipment and heavy machinery. Impact duration would be constant for the construction of turbines and fencing and the acquisition of land due to effects on viewsheds and access. The likelihood of impacts is unavoidable, given that TCPs are known to exist within the Lease Boundary. The spatial extent of impacts on TCPs would be regional.

Table 4.9-4: Potential Impacts from Solar Array Construction

Resource Sensitivity	Resource Type	Resource ID	Potential Impact(s) and Applicant Commitments	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
East Solar (Bofer Canyon)							
Determined not eligible for the NRHP	Archaeological Resources: Historic-period archaeological sites or isolates	▪ 45BN2138 ▪ 45BN2155 ▪ 45BN2139 ▪ 45BN2156	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined
Determined not eligible for the NRHP	Architectural Resources	▪ 721665 (McNary–Badger Canyon No. 1 Transmission Line) ▪ 722996 (147407 E. Beck Road Residence)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Unlikely	Local
Unevaluated for the NRHP	Archaeological Resources: Historic-period archaeological sites	▪ 45BN205 ▪ 45BN2140 ▪ 45BN2141 ▪ 45BN2142 ▪ 45BN2154	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	Medium	Constant	Unlikely	Confined
Determined eligible for the NRHP	Architectural Resource	▪ 721666 (McNary–Franklin No. 2 Transmission Line)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Unlikely	Regional
Determined eligible for the NRHP	Architectural Resource	▪ 721666 (McNary–Franklin No. 2 Transmission Line)	Physical impacts	High	Constant	Unlikely	Regional
West Solar 1 (County Well Road)							
Avoidance requested and recommended	Archaeological Resources: Precontact isolate	▪ 45BN2146	Destruction of or damage to resource through ground disturbance and physical alteration; adverse effects on resource through a loss or diminishment of integrity Resource to be avoided through application of the Cultural Resource Avoidance Plan	High	Constant	Unlikely	Confined
Unevaluated for the NRHP	Archaeological Resources: Historic-period archaeological sites	▪ 45BN2143 ▪ 45BN2145	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	Medium	Constant	Unlikely	Confined

Table 4.9-4: Potential Impacts from Solar Array Construction

Resource Sensitivity	Resource Type	Resource ID	Potential Impact(s) and Applicant Commitments	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
Determined not eligible for the NRHP	Archaeological Resources: Historic-period archaeological sites or isolates	▪ 45BN2144 ▪ 45BN2157 ▪ 45BN2158	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined
Determined not eligible for the NRHP	Architectural Resources	▪ 724939 (Farmhouse and Garage) ▪ 724940 (Shop) ▪ 724941 (Machine Shed) ▪ 724942 (Grain Elevator and Grain Storage Silos)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Unlikely	Local
West Solar 2 (Sellards Road)							
Unevaluated for the NRHP	Archaeological Resources: Historic-period archaeological sites	▪ 45BN2147 ▪ 45BN2159 ▪ 45BN2160 ▪ 45BN2161 ▪ 45BN2162	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	Medium	Constant	Unlikely	Confined
All Solar Siting Areas							
Unidentified historic and cultural resources	Archaeological Resources and Architectural Resources	▪ N/A	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Implementation of IDP in event of resource discovery	High	Constant	Feasible	Local
Traditional Cultural Properties	Traditional Cultural Properties: ▪ Places of cultural, religious and historical significance ▪ Burial sites ▪ Ancestral burial grounds ▪ First Foods ▪ Viewsheds Cultural landscapes and trails	▪ N/A	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference	High	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from construction of turbines and fencing and the acquisition of land	Unavoidable	Regional

DAHP = Washington Department of Archaeology and Historic Preservation; ID = identification; IDP = Inadvertent Discovery Plan; N/A = not applicable; NRHP = National Register of Historic Places

Substations and Battery Energy Storage System(s)

Four primary and two alternate substation locations have been proposed. Construction for each substation and associated supporting infrastructure would be confined to a 4-acre area. In addition, a BESS may be constructed adjacent to two of the proposed substations (Horse Heaven Wind Farm, LLC 2022). Impacts on historic and cultural resources may result in the destruction of or damage to historic and cultural resources through ground disturbance and physical alteration. Activities with such impacts include:

- Surface clearance and grading
- Installation of underground cables/grid connections
- Security fencing to enclose substations and BESS

Impacts from substation construction activities associated with noise, vibration, visual interferences, and restriction of access could have adverse effects on historic and cultural resources through a loss or diminishment of integrity. Activities with such impacts include:

- Construction traffic that creates or exacerbates noise
- Construction traffic that creates or exacerbates dust
- Vegetation clearance
- Fencing
- Land acquisition
- Use of large equipment and heavy machinery

Three historic-period archaeological sites and two architectural resources have been identified within the proposed substation construction areas, including alternate locations and adjacent BESS location(s) (Davis, Burk-Hise, and Henderson 2020; Davis and Ragsdale 2021; Davis, Tuck, et al. 2021) (Section 3.9). A summary of potential impacts on historic and cultural resources during substation and BESS construction is presented in **Table 4.9-5**.

Three historic-period archaeological sites (**45BN2157**, **45BN2158**, and **45BN2093**) and one architectural resource (**721665**) have been determined not eligible for the NRHP (WISAARD 2022a). Avoidance of the three archaeological resources is not required by DAHP. DAHP stated that the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b). For all historic and cultural resources determined not eligible for the NRHP, the magnitude of impact would be negligible. The impact duration would be constant beyond the life of the Project. The likelihood of impacts on these resources is probable. The spatial extent of impacts would be confined for the historic-period archaeological resources and local for the architectural resources.

Architectural resource **721666** (McNary–Franklin No. 2 Transmission Line) has been determined eligible for the NRHP. DAHP has stated that the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b). DAHP requested notice should the Project scope of work include physical impacts on any of the identified architectural resources (Hanson 2021b). Based on DAHP's review, the magnitude of impacts for architectural resource **721666** would be negligible. Impacts from noise, dust, and use of large equipment and heavy machinery would have a short-term

duration. Impacts from the construction of turbines would be constant beyond the life of the Project due to the effect of the turbines on the viewshed of the architectural resource. For all impacts, the likelihood would be unlikely, and the spatial extent would be regional.

If any physical alterations did occur to architectural resource **721666**, the magnitude of impact would be high, and the duration would be constant beyond the life of the Project. With the Project's scope of work, impacts would be unlikely. The spatial extent/setting of such impacts would be regional (see **Table 4.9-5**).

Resource sensitivity for unidentified historic and cultural resources within the substation and BESS construction areas is of highest concern. The IDP would be implemented in the event that previously unidentified resources were discovered during construction. For unidentified historic and cultural resources within construction areas, impacts would be high in magnitude, in compliance with the worst-case analysis stipulated by WAC 197-11-080. Impacts would be constant in duration, and feasible in terms of their likelihood. Spatial extent is assumed to be local because unidentified historic and cultural resources adjacent to the proposed Lease Boundary could be impacted.

The presence of TCPs within the Lease Boundary has been confirmed through coordination with the Tribes. Information on the presence and location of TCPs within the substation and BESS construction areas, specifically, is limited and confidential. In compliance with the worst-case analysis stipulated by WAC 197-11-080, the magnitude of impact on TCPs within the substation and BESS construction areas would be high. Impact duration would be short term for noise, dust, and use of large equipment and heavy machinery. Impact duration would be constant for the construction of turbines and fencing and the acquisition of land due to effects on viewsheds and access. The likelihood of impacts is unavoidable, given that TCPs are known to exist within the Lease Boundary. The spatial extent of impacts on TCPs would be regional.

Table 4.9-5: Potential Impacts from Substation and BESS Construction

Resource Sensitivity	Resource Type	Resource ID	Potential Impact(s) and Applicant Commitments	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
Determined not eligible for the NRHP	Archaeological Resources: Historic-period archaeological sites	▪ 45BN2157 ▪ 45BN2158 ▪ 45BN2093	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined
Determined not eligible for the NRHP	Architectural Resources	▪ 721665 (McNary–Badger Canyon No. 1 Transmission Line)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	unlikely	Local
Determined eligible for the NRHP	Architectural Resource	▪ 721666 (McNary–Franklin No. 2 Transmission Line)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Unlikely	Regional
Determined eligible for the NRHP	Architectural Resource	▪ 721666 (McNary–Franklin No. 2 Transmission Line)	Physical impacts	High	Constant	Unlikely	Regional
Unidentified historic and cultural resources	Archaeological Resources and Architectural Resources	N/A	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Implementation of IDP in event of resource discovery	High	Constant	Feasible	Local
Traditional Cultural Properties	Traditional Cultural Properties: ▪ Places of cultural, religious and historical significance ▪ Burial sites ▪ Ancestral burial grounds ▪ First Foods ▪ Viewsheds ▪ Cultural landscapes and trails	N/A	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference	High	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from construction of turbines and fencing and the acquisition of land	Unavoidable	Regional

DAHP = Washington Department of Archaeology and Historic Preservation; ID = identification; IDP = Inadvertent Discovery Plan; N/A = not applicable; NRHP = National Register of Historic Places

Comprehensive Project

The preceding discussion describes the potential impacts on historic and cultural resources from construction of individual Project subcomponents. A summary of potential impacts on historic and cultural resources during construction of the comprehensive Project is presented in **Table 4.9-6**.

The construction of the entire Project could result in the following potential impacts:

- Destruction of or damage through ground disturbance and physical alteration
- Adverse effects through a loss or diminishment of integrity
- Loss of access
- Visual interference

The successful implementation of the Cultural Resource Avoidance Plan and/or IDP would ensure the avoidance of impacts on:

- Historic-period archaeological sites that are either unevaluated or eligible for the NRHP
- Precontact archaeological resources (sites and isolates)
- Unidentified historic and cultural resources

Impacts from the comprehensive project to precontact archaeological resources, historic-period archaeological resources (either not eligible or unevaluated for the NRHP), and architectural resources (either not eligible or eligible for the NRHP) would be the same as discussed in the preceding sections. Given the finite number and discrete locations of archaeological and architectural resources, the impacts from the comprehensive project are expected to be equivalent to the summation of the impacts of the various components.

For unidentified historic and cultural resources within construction areas, impacts would be high in magnitude, in compliance with the worst-case analysis stipulated by WAC 197-11-080. Impacts would be constant in duration, and feasible in terms of their likelihood. Spatial extent is assumed to be local because unidentified historic and cultural resources adjacent to the proposed Lease Boundary could be impacted.

The presence of TCPs within the Lease Boundary has been confirmed through coordination with the Tribes. Information on the presence and location of TCPs with respect to the comprehensive Project is limited and confidential. In compliance with the worst-case analysis stipulated by WAC 197-11-080, the magnitude of impact on TCPs within the substation and BESS construction areas would be high. Impact duration would be short term for noise, dust, and use of large equipment and heavy machinery. Impact duration would be constant for the construction of turbines and fencing and the acquisition of land due to effects on viewsheds and access. The likelihood of impacts is unavoidable, given that TCPs are known to exist within the Lease Boundary. The spatial extent of impacts on TCPs would be regional.

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Table 4.9-6: Potential Impacts from Comprehensive Project – Construction

Resource Sensitivity	Resource Type	Impact	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
DAHP-issued permit required prior to disturbance	Archaeological Resources: Precontact or multicomponent sites	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	High	Constant	Unlikely	Confined
Avoidance requested and recommended	Archaeological Resources: Precontact isolates	Destruction of or damage to resource through ground disturbance and physical alteration; adverse effects on resource through a loss or diminishment of integrity Resource to be avoided through application of the Cultural Resource Avoidance Plan	High	Constant	Unlikely	Confined
Traditional Cultural Properties	Traditional Cultural Properties: ▪ Places of cultural, religious and historical significance ▪ Burial sites ▪ Ancestral burial grounds ▪ First Foods ▪ Viewsheds ▪ Cultural landscapes and trails	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference	High	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from construction of turbines and fencing and the acquisition of land	unavoidable	Regional
Unevaluated for the NRHP	Archaeological Resources: Historic-period archaeological sites	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	Medium	Constant	probable	Confined
Unidentified historic and cultural resources	Archaeological Resources and Architectural Resources	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Implementation of IDP in event of resource discovery	High	Constant	Feasible	Local
Determined eligible for the NRHP	Architectural Resources	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Unlikely	Regional
Determined eligible for the NRHP	Architectural Resources	Physical impacts	High	Constant	Unlikely	Regional
Determined not eligible for the NRHP	Archaeological Resources	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined
Determined not eligible for the NRHP	Architectural Resources	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Unlikely	Local

DAHP = Washington Department of Archaeology and Historic Preservation; ID = identification; IDP = Inadvertent Discovery Plan; N/A = not applicable; NRHP = National Register of Historic Places

4.9.2.2 Impacts during Operation

Impacts on historic and cultural resources are anticipated during operation of the Project. Impacts from all subcomponents are anticipated to be identical during operation. Therefore, this EIS analyzes impacts from the operation of the comprehensive Project only.

The magnitude of impacts from the operation of the comprehensive Project could range from negligible to high, based on the resource sensitivity and the extent of adverse effects, both direct and indirect, on historic and cultural resources (see Section 4.9.1 Method of Analysis). For impacts during operation, resource sensitivity is of highest concern for TCPs, NRHP-eligible architectural resources, and unidentified historic and cultural resources. A summary of potential impacts on historic and cultural resources during Project operation is presented in **Table 4.9-7**.

Comprehensive Project

Impacts from Project operation associated with noise, vibration, visual interferences, and restriction of access could have adverse effects on historic and cultural resources through a loss or diminishment of integrity. Activities with such impacts include:

- Operation of multiple turbines, solar arrays, substations, and BESS
- Creation or exacerbation of noise from maintenance vehicles
- Creation or exacerbation of dust from maintenance vehicles
- Use of security measures to restrict access to Project subcomponents

During Project operation, fencing to restrict access to turbines, solar arrays, and substation and BESS locations could result in loss of access for Tribes to TCPs that may be present within these spaces. Fencing could result in fragmentation of the wider cultural landscape. Impacts on the environmental setting and wider cultural landscape through visual changes during the operational stage of wind and solar projects are subjective and are discussed in more detail in Section 4.10. In the case of the Project, visual interference from multiple operating turbines could have a high-magnitude impact on the sense of place of cultural landscapes both within and beyond the Lease Boundary, affecting distant viewsheds (toward and across the Lease Boundary), linkages between TCPs, and the immediate confines of a specific TCP site and its unique sociocultural setting.

The presence of TCPs within the Lease Boundary has been confirmed through coordination with the Tribes. Information on the presence and location of TCPs with respect to the comprehensive Project limited and confidential. In compliance with the worst-case analysis stipulated by WAC 197-11-080, the magnitude of impact on TCPs during Project operation would be high. Impact duration would be long term for noise and dust. Impact duration would be constant for the operation of the turbines and security measures due to visual interference, restricted access, and destruction of the landforms and resources that are sacred. The likelihood of impacts is probable, given that TCPs are known to exist within the Lease Boundary. The spatial extent of impacts on TCPs would be regional.

Four architectural resources (**721666**, **722995**, **724937**, **724938**) within the Lease Boundary have been determined eligible for the NRHP (WISAARD 2022b, 2022c, 2023b, 2023c). DAHP has stated that the Project would not physically impact any identified architectural resources and, therefore, DAHP has no concerns about architectural resources (Hanson 2021b). Based on DAHP's review, the magnitude of impacts for the architectural resources would be negligible. Impacts from noise and dust would have long-term duration. Impacts from the

operation of the turbines would be constant during the life of the Project due to the effect of the turbines on the viewshed of the architectural resources. For all impacts, the likelihood would be unlikely, and the spatial extent would be regional.

For unidentified historic and cultural resources within the Lease Boundary, impacts during Project operation would be low in magnitude. Impacts would be long term in duration, and feasible in terms of their likelihood. Spatial extent is assumed to be local because unidentified historic and cultural resources adjacent to the proposed Lease Boundary could be impacted.

Table 4.9-7: Potential Impacts from Comprehensive Project – Operation

Resource Sensitivity	Resource Type	Resource ID	Impact	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
Traditional Cultural Properties	Traditional Cultural Properties: ▪ Places of cultural, religious and historical significance ▪ Burial sites ▪ Ancestral burial grounds ▪ First Foods ▪ Viewsheds ▪ Cultural landscapes and trails	N/A	Noise, vibration, visual interferences, and restriction of access	High	Long term for impacts from noise and dust Constant for impacts from turbine operation and security measures	Unavoidable	Regional
Determined eligible for the NRHP	Architectural Resources	▪ 721666 (McNary–Franklin No. 2 Transmission Line) ▪ 722995 (Grain elevator) ▪ 724937 (Nicoson Road Farmstead Barn Storage Building) ▪ 724938 (Nicoson Road Farmstead Cribbed Grain Elevator)	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Long term for impacts from noise and dust Constant for impacts from the turbine operation	Unlikely	Regional
Unidentified historic and cultural resources	▪ Archaeological Resources and Architectural Resources	N/A	Adverse effects on resources through a loss or diminishment of integrity Implementation of IDP in event of resource discovery	Low	Long Term	Feasible	Local

DAHP = Washington Department of Archaeology and Historic Preservation; ID = identification; IDP = Inadvertent Discovery Plan; N/A = not applicable; NRHP = National Register of Historic Places

4.9.2.3 Impacts during Decommissioning

Comprehensive Project

Decommissioning activities are assumed to involve the removal of most of the Project's aboveground structures to allow site redevelopment or restoration. This EIS analyzes impacts from decommissioning of the comprehensive Project only. For Project decommissioning, resource sensitivity is of highest concern for precontact archaeological resources (sites and isolates), TCPs, and unidentified historic and cultural resources. A summary of potential impacts on historic and cultural resources during Project decommissioning is presented in **Table 4.9-8**.

No additional ground disturbance would occur beyond that carried out for construction. However, impacts from decommissioning may result in the destruction of or damage to historic and cultural resources through ground disturbance and physical alteration. Activities with such impacts include:

- Surface grading
- Surface clearance
- Removal of tower foundations
- Removal of supporting infrastructure (e.g., meteorological stations, transformers, and underground cables)
- Removal of fencing

Impacts from decommissioning activities associated with noise, vibration, visual interferences, and restriction of access could have adverse effects on historic and cultural resources through a loss or diminishment of integrity. Activities with such impacts include:

- Heavy vehicle traffic that creates or exacerbates noise
- Heavy vehicle traffic that creates or exacerbates dust
- Temporary access restrictions
- Use of large equipment and heavy machinery

For all archaeological resources within the Lease Boundary, impacts may result in destruction of or damage through ground disturbance and physical alteration and/or adverse effects. For precontact archaeological resources (sites and isolates), such impacts would be high in magnitude. Impacts would have medium and negligible magnitude for unevaluated and noneligible historic-period archaeological resources, respectively. Impacts would be unlikely for all archaeological resources, given that ground disturbance would be limited to areas previously impacted by Project construction. The Cultural Resource Avoidance Plan would also make impacts unlikely. Duration would be constant beyond the life of the Project, and spatial extent would be confined.

The presence of TCPs within the Lease Boundary has been confirmed through coordination with the Tribes. Information on the presence and location of TCPs with respect to the comprehensive Project is limited and confidential. In compliance with the worst-case analysis stipulated by WAC 197-11-080, the magnitude of impact on TCPs from Project decommissioning would be high. Impact duration would be short term for noise, dust, temporary access restrictions, and use of large equipment and heavy machinery. The likelihood of impacts is unavoidable, given that TCPs are known to exist within the Lease Boundary. The spatial extent of impacts on TCPs would be regional.

For unidentified historic and cultural resources, impacts from decommissioning would be high in magnitude, in compliance with the worst-case analysis stipulated by WAC 197-11-080. Impacts would be constant in duration and confined in spatial extent. Impacts would be unlikely, given that ground disturbance would be limited to areas previously impacted by Project construction. The Cultural Resource Avoidance Plan would also make impacts unlikely.

DAHP has stated that the Project would not physically impact any identified architectural resources and, as such, DAHP has no concerns about architectural resources (Hanson 2021b). DAHP requested notice should the Project scope of work include physical impacts to any of the identified architectural resources (Hanson 2021b). Based on DAHP's review, the magnitude of impacts for architectural resources from Project decommissioning would be Negligible. Impacts from noise, dust, and use of large equipment and heavy machinery would have short-term duration. The likelihood would be Unlikely, and the spatial extent would be regional for NRHP-eligible resources and local for non-eligible resources.

If any physical alterations did occur to any architectural resources, the magnitude of impact would be high for NRHP-eligible resources and low for noneligible resources, and the duration would be constant beyond the life of the Project. With the Project's scope of work, impacts would be unlikely. The spatial extent/setting of such impacts would be regional for NRHP-eligible resources and local for not eligible resources (see **Table 4.9-8**)

Table 4.9-8: Potential Impacts from Comprehensive Project – Decommissioning

Resource Sensitivity	Resource Type	Impact	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional
DAHP-issued permit required prior to disturbance	Archaeological Resources: Precontact or multicomponent sites	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	High	Constant	Unlikely	Confined
Avoidance requested and recommended	Archaeological Resources: Precontact isolates	Destruction of or damage to resource through ground disturbance and physical alteration; adverse effects on resource through a loss or diminishment of integrity Resource to be avoided through application of the Cultural Resource Avoidance Plan	High	Constant	Unlikely	Confined
Unevaluated for the NRHP	Archaeological Resources: Historic-period archaeological sites	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Resources to be avoided through application of the Cultural Resource Avoidance Plan	Medium	Constant	Unlikely	Confined
Determined not eligible for the NRHP	Archaeological Resources	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Unlikely	Confined
Traditional Cultural Properties	Traditional Cultural Properties: ▪ Places of cultural, religious and historical significance ▪ Burial sites ▪ Ancestral burial grounds ▪ First Foods ▪ Viewsheds ▪ Cultural landscapes and trails	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference	High	Short term	Unavoidable	Regional
Unidentified historic and cultural resources	Archaeological Resources and Architectural Resources	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity Implementation of IDP in event of resource discovery	High	Constant	Unlikely	Confined
Determined eligible for the NRHP	Architectural Resources	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Short term	Unlikely	Regional
Determined not eligible for the NRHP	Architectural Resources	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Short-term	Unlikely	Local
Determined not eligible for the NRHP	Architectural Resources	Physical impacts	Low	Constant	Unlikely	Local

DAHP = Washington Department of Archaeology and Historic Preservation; ID = identification; IDP = Inadvertent Discovery Plan; N/A = not applicable; NRHP = National Register of Historic Places

4.9.2.4 Recommended Mitigation Measures

This section describes proposed mitigation measures to minimize or avoid impacts on historic and cultural resources from construction, operation, and decommissioning of the Project. Mitigation identified by EFSEC consists of Traditional Cultural Properties Mitigation (CR-1) and Archaeological and Architectural Resources Mitigation (CR-2). Guidance and input from DAHP and the Tribes have been and will continue to be sought for all proposed mitigation measures. Further mitigation for impacted resources may be developed through coordination with EFSEC, DAHP, and Tribes.

Mitigation is not considered fully effective when part of the measure requires cooperation by a third party (e.g., DAHP, Tribes), which EFSEC cannot require. EFSEC would work with the identified parties to facilitate cooperation in implementing a mitigation measure. Additional analysis required for historic and cultural resources is explained further in ES-4 Key Issues and Issues to Be Resolved.

In October 2023, CTUIR notified EFSEC that. through coordination with Horse Heaven Wind Farm, LLC, CTUIR's concerns regarding historic and cultural resources had been addressed. CTUIR and Horse Heaven Wind Farm, LLC have been in discussions regarding the Horse Heaven Clean Energy Center and have reached a mutual agreement to mitigate adverse effects on cultural resources and historic property of religious and cultural significance to the CTUIR (Ashley 2023).

The Yakama Nation have requested further consultation regarding appropriate site buffers on a site-by-site basis throughout the Project. Particular historic and cultural resources may require a larger buffer than those stated in the Applicant Commitments.

CR-1:[48] Traditional Cultural Properties Mitigation

Ongoing engagement with affected Tribes could facilitate mitigation of any potential impacts on TCPs. Tribal review of site/engineering plans could provide input to guide design and avoidance, without confidential disclosure of locations. This engagement should also include opportunities for identified stakeholders to evaluate the effectiveness of any implemented mitigation measures throughout the Project's lifecycle.

Appropriate mitigation measures may include (but are not limited to) the demarcation of "no-go," culturally sensitive areas to be avoided by contractors throughout the life of the Project, including redesign, refinement, and/or maintenance. The demarcation of culturally sensitive areas could also facilitate safe access to TCPs and/or other places of cultural significance for Tribes. If appropriate, the implementation of environmental enhancement measures (e.g., planting and/or screening) or the protection of certain aspects of the environmental setting may be considered in coordination with affected Tribes.

The CTUIR proposed several mitigation strategies (CTUIR 2021a, 2021b). Potential mitigation strategies include:

- Enable continued access for Tribes through an Access Agreement (e.g., continued access to First Foods).
- Create protections for natural resources that support First Foods procurement (e.g., preserve landforms, practice responsible stream management, avoid negative impacts on pollinator species).

[48] CR-: Identifier of numbered mitigation item for Historic and Cultural Resources

- Perform off-site mitigation, including education and outreach work, to assist Tribes in the perpetuation of oral history and legends that would have been taught in-situ in the Area of Analysis; engage with Tribes on appropriate rehabilitation (closure) strategies for the safeguarding of viewshed and cultural landscapes.
- Include Tribal representatives during any ground-disturbing activities (Cultural Resource Monitor).
- Develop an agreement with the Tribes in anticipation of a time when the wind farm would be considered for disassembly to restore the landscape and viewshed.

CR-2: Archaeological and Architectural Resources Mitigation

Table 4.9-9 sets out proposed mitigation measures for historic and cultural resources potentially impacted by the Project. Any mitigation strategies should be detailed in an agreement document between EFSEC, DAHP, the Tribes, and the Project proponent.

Mitigation measures are intended to minimize impacts on historic and cultural resources with elevated sensitivity (precontact archaeological resources, NRHP-eligible historic-period archaeological resources, TCPs, and unidentified historic and cultural resources), primarily through avoidance. If avoidance is not possible, the mitigation clarifies which resources would require a DAHP permit prior to disturbance. Mitigation measures also identify instances where engagement with DAHP, Tribes, and/or landowners would be required.

Table 4.9-9: Summary of Recommendations for Historic and Cultural Resources Potentially Impacted by the Project

Resource ID	Resource Type	Resource Sensitivity	Required Mitigation If Avoidance Not Possible
▪ 45BN2092 ▪ 45BN2146	Archaeological Resources Precontact Isolates	Avoidance requested and recommended	▪ DAHP permit not required for disturbance ▪ Further coordination with Tribes and DAHP
▪ 45BN261 ▪ 45BN2090 ▪ 45BN2153 (precontact component)	Archaeological Resources: Precontact or multicomponent sites	Avoidance requested and recommended DAHP-issued permit required prior to disturbance	▪ Further coordination with Tribes and DAHP

Table 4.9-9: Summary of Recommendations for Historic and Cultural Resources Potentially Impacted by the Project

Resource ID	Resource Type	Resource Sensitivity	Required Mitigation If Avoidance Not Possible
▪ 45BN2081 ▪ 45BN2082 ▪ 45BN2083 ▪ 45BN2084 ▪ 45BN2086 ▪ 45BN2088 ▪ 45BN2091 ▪ 45BN2093 ▪ 45BN2138 ▪ 45BN2139 ▪ 45BN2144 ▪ 45BN2150 ▪ 45BN2155 ▪ 45BN2156 ▪ 45BN2157 ▪ 45BN2158 ▪ 45BN2163	Archaeological Resources: Historic-Period Sites and Isolates	Determined not eligible for the NRHP	▪ None
▪ 45BN205 ▪ 45BN2085 ▪ 45BN2087 ▪ 45BN2089 ▪ 45BN2140 ▪ 45BN2141 ▪ 45BN2142 ▪ 45BN2143 ▪ 45BN2145 ▪ 45BN2147 ▪ 45BN2148 ▪ 45BN2149 ▪ 45BN2151 ▪ 45BN2152 ▪ 45BN2153 (historic component) ▪ 45BN2154 ▪ 45BN2159 ▪ 45BN2160 ▪ 45BN2161 ▪ 45BN2162	Archaeological Resources (Historic Sites)	Unevaluated for the NRHP	▪ DAHP permit required prior to any disturbance ▪ Evaluate site for NRHP eligibility

Table 4.9-9: Summary of Recommendations for Historic and Cultural Resources Potentially Impacted by the Project

Resource ID	Resource Type	Resource Sensitivity	Required Mitigation If Avoidance Not Possible
▪ 667765 (Nine Canyon Road) ▪ 721665 (McNary–Badger Canyon No. 1 Transmission Line) ▪ 722996 (147407 E. Beck Road Residence) ▪ 724939 (Farmhouse and Garage) ▪ 724940 (Shop) ▪ 724941 (Machine Shed) ▪ 724942 (Grain Elevator and Grain Storage Silos)	Architectural Resources	Determined not eligible for the NRHP	▪ Notify DAHP of any anticipated physical impacts
▪ 721666 (McNary–Franklin No. 2 Transmission Line) ▪ 722995 (Grain elevator) ▪ 724937 (Nicoson Road Farmstead Barn Storage Building) ▪ 724938 (Nicoson Road Farmstead Cribbed Grain Elevator)	Architectural Resources	Determined eligible for the NRHP	▪ Notify DAHP of any anticipated physical impacts
N/A	Archaeological Resources and Architectural Resources	Unidentified historic and cultural resources	▪ DAHP permit required prior to any disturbance to archaeological sites ▪ Further coordination with Tribes and DAHP

Notes:
DAHP = Washington State Department of Archaeology and Historic Preservation; ID = identification; N/A = not applicable; NRHP = National Register of Historic Places

4.9.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would occur.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and consider undergrounding transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[49]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary

[49] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remain. The additional Applicant commitments identified above do not change the impact ratings previously provided for historic and cultural resources in the Draft EIS, and the impact ratings remain the same.

4.9.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn depend on the magnitude and duration of an impact. “Significant” in SEPA means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting impact would be severe if it occurred (WAC 197-11-794).

This EIS weighs the impacts on historic and cultural resources that may result from the proposed Project with mitigation and makes a resulting determination of significance for each impact in **Tables 4.9-11a, 4.9-11b,** and **4.9-11c**. As shown in the impact summary tables below, EFSEC has determined that significant impacts for partial or complete loss to TCPs could occur during all phases of the Project.

Table 4.9-10a: Summary of Potential Impacts on Historic and Cultural Resources during Construction of the Proposed Action

Resource Type(s) and Sensitivity	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Precontact Archaeological resources; DAHP-issued permit required prior to disturbance - OR - Avoidance requested and recommended	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	High	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic-period archaeological isolates and sites determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Architectural resources determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Probable	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Unevaluated archaeological historic-period sites	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Medium	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Adverse effects on resources through a loss or diminishment of integrity	Low	Short term for impacts from noise, dust, and use of large equipment and heavy machinery Constant for impacts from turbine construction	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified

Table 4.9-10a: Summary of Potential Impacts on Historic and Cultural Resources during Construction of the Proposed Action

Resource Type(s) and Sensitivity	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation©	Significant Unavoidable Adverse Impacts[d]
Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Physical impacts	High	Constant	Unlikely	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Unidentified historic and cultural resources	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity.	High	Constant	Feasible	Local	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of an Inadvertent Discovery Plan	None identified
Traditional Cultural Properties	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference.	High	Short term for impacts from noise, dust, and use of large equipment and heavy machinery. Constant for impacts from construction of turbines and fencing and the acquisition of land.	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties.

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impact©[c] Mitigation measures listed here are additional actions that EFSEC could impose on the Applicant to further reduce the impacts. See Section 4.1, Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS= battery energy storage system; DAHP = Washington Department of Archaeology and Preservation; EFSEC = Washington Energy Facility Site Evaluation Council; NRHP = National Register of Historic Places; Tribes = Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Wanapum Tribe

Table 4.9-10b: Summary of Potential Impacts on Historic and Cultural Resources during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Adverse effects on resources through a loss or diminishment of integrity.	Low	Long term for impacts from noise and dust Constant for impacts from the turbine operation	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Unidentified historic and cultural resources	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Adverse effects on resources through a loss or diminishment of integrity	Low	Long Term	Probable	Local	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of an Inadvertent Discovery Plan	None identified
Traditional Cultural Properties	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Noise, vibration, visual interferences, and restriction of access.	High	Long term for impacts from noise and dust Constant for impacts from turbine operation and security measures	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties and resources.

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose on the Applicant to further reduce the impacts. See Section 4.1, Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS= battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.9-10c: Summary of Potential Impacts on Historic and Cultural Resources during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Precontact Archaeological resources; DAHP-issued permit required prior to disturbance - OR - Avoidance requested and recommended	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	High	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Historic-period archaeological isolates and sites determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Negligible	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Architectural resources determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Adverse effects on resources through a loss or diminishment of integrity.	Low	Short-term	Feasible	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Architectural resources determined not eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Physical impacts	Low	Constant	Unlikely	Local	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Unevaluated archaeological historic-period sites	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity	Medium	Constant	Unlikely	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of a Cultural Resource Avoidance Plan	None identified
Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Adverse effects on resources through a loss or diminishment of integrity	Low	Short term	Feasible	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Architectural Resources determined eligible for the NRHP	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Physical impacts	High	Constant	Unlikely	Regional	**CR-2:** Archaeological and Architectural Resources Mitigation	None identified
Unidentified historic and cultural resources	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; adverse effects on resources through a loss or diminishment of integrity.	High	Constant	Probable	Confined	**CR-2:** Archaeological and Architectural Resources Mitigation to include the implementation of an Inadvertent Discovery Plan	None identified
Traditional Cultural Properties	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Destruction of or damage to resources through ground disturbance and physical alteration; loss of access to resources; visual interference.	High	Short term	Unavoidable	Regional	**CR-1:** Traditional Cultural Properties Mitigation	Significant for partial or complete loss of traditional cultural properties and resources

Notes:
[a] The impacts related to each component including “comprehensive Project” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose on the Applicant to further reduce the impacts. See Section 4.1, Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
Applicant = Horse Heaven Wind Farm, LLC; BESS= battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council
NRHP = National Register of Historic Places; Tribes = Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, and Wanapum Tribe

4.9.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to historical and cultural resources from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.10 Visual Aspects, Light and Glare

This section evaluates the visual and aesthetic impacts of the proposed Horse Heaven Wind Farm (Project, or Proposed Action) within the area of analysis for visual resources. Section 3.10 presents the affected environment for visual aspects, light and glare. The analysis area includes the key observation point (KOP) locations and residential receptors on adjacent properties and areas of dense population near the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River.

In accordance with the Washington State Environmental Policy Act, this Environmental Impact Statement (EIS) weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors when determining the significance of identified potential impacts (WAC 197-11-330 and WAC 197-11-794). The impact rating is summarized in **Table 4.10-1.**

Table 4.10-1: Impact Rating Table for Visual Aspects, Light and Glare from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Background

Potential impacts from the Proposed Action are assessed for visual aspects, shadow flicker, light, and glare during the construction, operation, and decommissioning stages of the following Project components:

- Turbine Option 1 and Turbine Option 2
- Solar arrays
- Battery energy storage systems (BESS)

- Substations and transmission lines
- Comprehensive Project

The evaluation presented herein relies on the following reports generated for the Application for Site Certification (ASC) for the Project, or subsequently provided for this EIS:

- Updated Visual Impact Assessment Report (SWCA 2023)
- Aesthetics Technical Memorandum for the Horse Heaven Wind Farm Project provided by Horse Heaven Wind Farm, LLC (Horse Heaven Wind Farm, LLC 2021a)
- 2022 ASC provided by Horse Heaven Wind Farm, LLC (Applicant) (Horse Heaven Wind Farm, LLC 2022)
- Shadow Flicker Analysis Memorandum provided by Horse Heaven Wind Farm, LLC (Horse Heaven Wind Farm, LLC 2021b)
- Glare Analysis Report provided by the Applicant (Horse Heaven Wind Farm, LLC 2021c)

4.10.1 Method of Analysis

Anticipated visual, lighting, and glare impacts during operation of the Project were quantified and qualified using several methodologies. During construction and decommissioning stages, however, the Project would generate minimal light and glare from vehicles and equipment, and minimal work would be performed during nighttime hours, thus limiting the need for temporary nighttime lighting (Horse Heaven Wind Farm, LLC 2021c). Additionally, solar panel construction is not expected to create glare until the panels are installed; therefore, the construction impacts would be equivalent to the glare generated by the Project. For these reasons, impact analysis for lighting and glare was considered only for the operational phase of the Project. The assessment of anticipated visual aspect effects considered impacts during the construction and decommissioning stages, as these activities would generate visual contrast with the existing setting, which would be visible from identified KOP locations.

4.10.1.1 Visual Aspects Methodology

The analysis of the Project's visual impacts focuses on three elements: landscape character, viewing locations, and compliance with state and county visual management guidance. The analysis uses the methods developed by the Clean Energy States Alliance (CESA), which suggest three evaluation criteria as they relate to determining whether impacts rise to the magnitude of "undue" or "unreasonable" (CESA 2011):

- Does the project violate a clear written aesthetic standard intended to protect the scenic values or aesthetics of the area or a particular scenic resource?
- Does the project dominate views from highly sensitive viewing areas or within the region as a whole?
- Has the developer failed to take reasonable measures to mitigate the significant or avoidable impacts of the project?

In consideration of the methods developed by CESA and the Bureau of Land Management (BLM), **Table 4.10-2** further describes the degrees of magnitude outlined in **Table 4.10-1** (negligible, low, medium, and high) as they relate to the visual impact analysis performed for the Project. As identified in **Table 4.10-2**, the determination of impact magnitude is based on impacts on landscape character, impacts on viewing locations, and compliance with state and county visual resource requirements. These determinations are primarily informed by the concept

of project contrast, which is a measure of the overall visual changes to existing features of the landscape (including landform/water, vegetation, and human-made structures) resulting from the construction, operation, and decommissioning of a project. The level of project contrast is assessed using the categories of slight, weak, moderate, and strong, which directly align with the magnitude of change degrees of negligible, low, medium, and high.

Table 4.10-2: Criteria for Assessing Magnitude of Impacts Related to Visual Aspects

Magnitude of Impacts	Description
Negligible	**Landscape character:** Landscape would appear unaltered and Project components would not attract attention. Project components would repeat form, line, color, texture, scale and/or movement common in the landscape and would not be visually evident. **Viewing locations:** Contrast introduced by the Project would be slight, subordinate to existing landscape features, and not readily seen from viewing locations. Project components would repeat elements or patterns common in the landscape. **State and county visual resource requirements:** The Project would be consistent with state and county visual management requirements.
Low	**Landscape character:** Landscape would be noticeably altered, and Project components would begin to attract attention in a partially intact visual setting. Project components would introduce form, line, color, texture, scale, and/or movement common in the landscape and would be visually subordinate (i.e., have weak contrast). **Viewing locations:** A weak level of contrast would be introduced by the Project. The Project would occupy a small portion of the viewshed and would be subordinate to existing landscape features, as seen from viewing locations. **State and county visual resource requirements:** The Project would be consistent with state and county visual management requirements after implementation of Applicant commitments.
Medium	**Landscape character:** Landscape would appear to be considerably altered, and Project components would begin to dominate a partially intact visual setting. Project components would introduce form, line, color, texture, scale, and/or movement not common in the landscape and would be visually prominent in the landscape (moderate contrast). **Viewing locations:** A moderate level of contrast would be introduced by the Project, attracting attention from viewing locations. The Project would be prominent in the existing landscape and co-dominate from viewing locations where the form, line, color, texture, scale, and/or movement of Project components would be moderately incongruent with existing landscape features. **State and county visual resource requirements:** The Project would be partially consistent with state and county visual management requirements after Applicant commitments.
High	**Landscape character:** Landscape would appear to be strongly altered, and Project components would dominate an intact visual setting. Project components would introduce form, line, color, texture, scale, and/or movement not common in the landscape and would be visually dominant in the landscape (strong contrast). **Viewing locations:** A strong level of contrast would be introduced by the Project, demanding attention. The Project would be highly prominent and dominate views from viewing locations where the form, line, color, texture, scale, and/or movement of Project components would be highly incongruent with existing landscape features, including existing structures. A strong level of contrast may also be introduced if the Project components occupy a large portion of the viewshed from a given viewpoint. **State and county visual resource requirements:** The Project would be inconsistent with state and county visual management requirements after Applicant commitments.

Source: SWCA 2023

Other concepts taken from the CESA methods were used to evaluate and address the unique visual characteristics of wind energy projects. The assessment of impacts on landscape character includes modifications to the existing setting, which may reduce the setting's overall level of intactness. With regard to impacts on views, the concepts of project dominance, prominence within the setting, and extent of viewshed occupied by the Project (i.e., extent of horizontal view occupied by Project) were included from the CESA methods. These concepts build on the BLM Visual Resource Management's 10 environmental factors that influence the amount of visual contrast introduced by a project (BLM 1986):

- Distance
- Angle of observation
- Length of time the project is in view
- Relative size or scale
- Season of use
- Lighting conditions
- Recovery time
- Spatial relationships
- Atmospheric conditions
- Motion

Of particular importance for a project with wind turbines is the influence of motion to attract attention and increase the level of visual contrast within view, compared to static elements (e.g., solar arrays, transmission lines).

To support the visual impact discussions, the following visual terminology is used in this report:

- Viewer position (angle of observation)
  - Inferior: viewer is located below the Project in elevation.
  - Level: viewer is at the same elevation as the Project.
  - Superior: viewer is located above the Project in elevation.
- Project visibility factors
  - Screening: An existing visual barrier (landforms, vegetation, or structures) blocks or limits views of the Project, reducing the level of contrast introduced by the Project.
  - Unobstructed: Views of the Project would not be screened by landforms, vegetation, or structures, allowing for the extent of the Project to be visible.
  - Skylining: The Project would appear above the horizon or ridgeline, silhouetting its form against the sky attracting additional attention in the landscape.

Since impacts on visual resources considered effects on scenery and on views from multiple KOPs, the summary impact level (i.e., magnitude of impact) at the end of each discussion focuses on the highest identified impacts. Visual impacts on cultural resources, including from the perspective of Native American tribes, are described in Section 4.9, Historic and Cultural Resources.

The maximum number of turbines and maximum turbine height carried forward for analysis as components of the Project under Turbine Option 1 and Turbine Option 2 are summarized in **Table 4.10-3**.

Table 4.10-3: Proposed Action Example Wind Turbine Layout and Model Options

Turbine Parameters/Features	Turbine Option 1	Turbine Option 2
Wind Turbine Output	GE 2.82-MW	GE 5.5-MW
Wind Turbine Layout	244 turbines up to a maximum blade tip height of 499 feet[(a)]	150 turbines up to a maximum blade tip height of 671 feet[(a)]
Tower Type	Tubular	Tubular
Turbine Rotor Diameter	417 feet	518 feet
Turbine Hub Height (ground to nacelle)	292 feet	411 feet
Tower Base Diameter	15.1 feet	15.1 feet

Source: Horse Heaven Wind Farm, LLC 2022
Notes:
[(a)] As proposed in the 2022 ASC, Table 2.3-1
ASC = Application for Site Certification; GE = General Electric; MW = megawatts

Turbine Option 1 is shown in **Figure 4.10-1**, and Turbine Option 2 is shown in **Figure 4.10-2**. The final number of turbines and the specific model used would depend on availability and other considerations at the time of construction.

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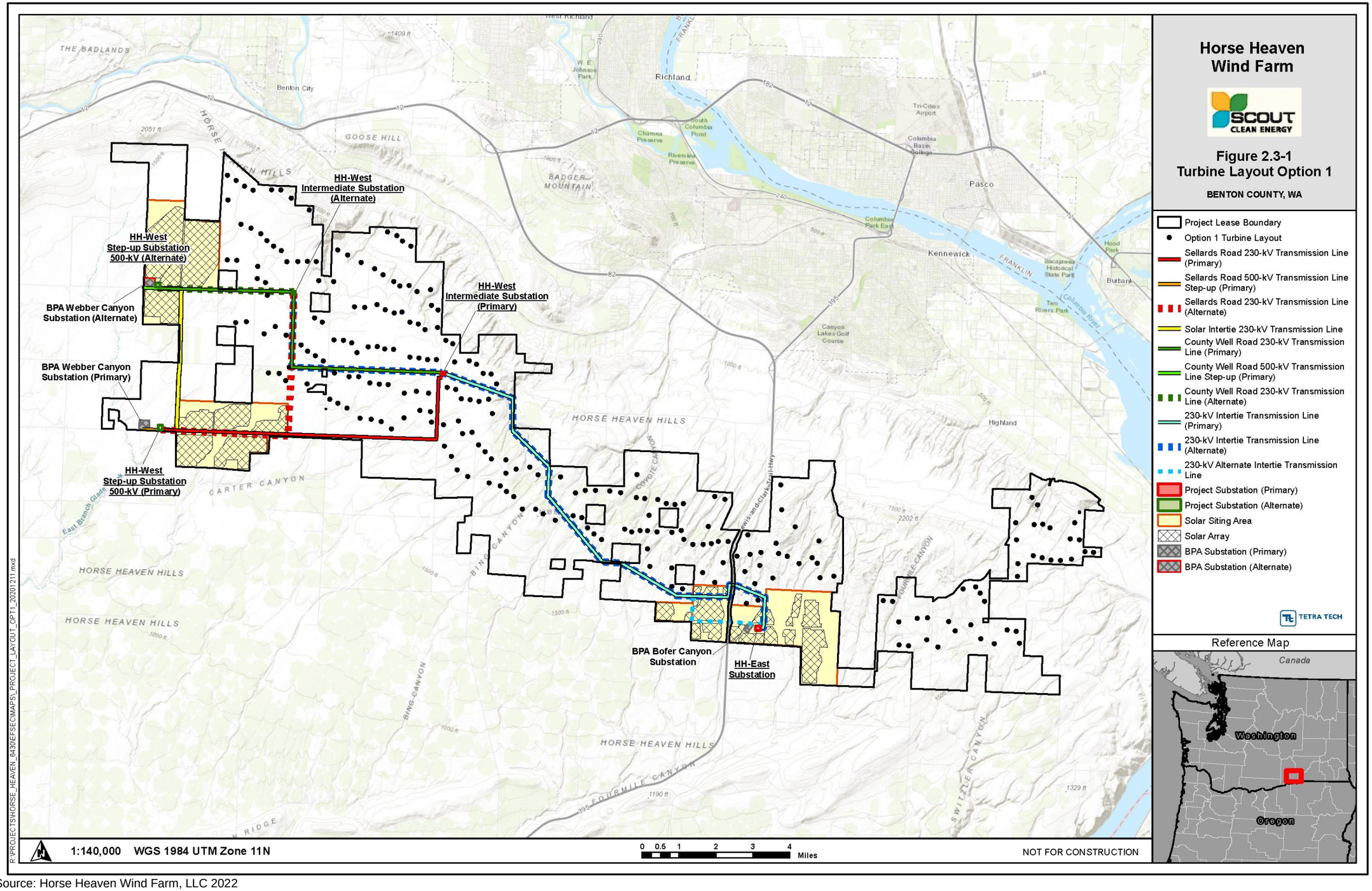
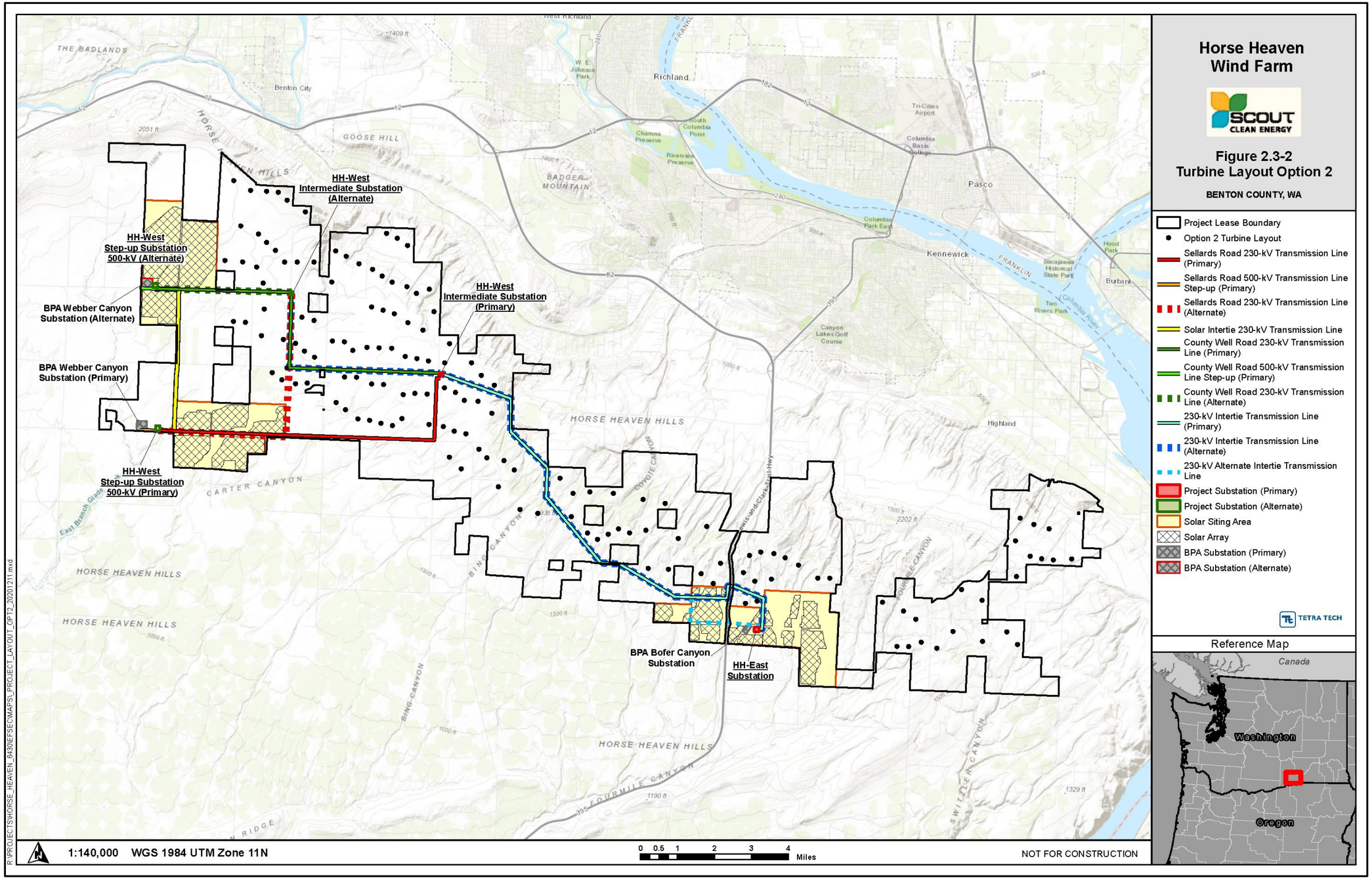


Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.10-1: Turbine Option 1 Layout



Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.10-2: Turbine Option 2 Layout

4.10.1.2 Shadow Flicker Methodology

An analysis of potential shadow flicker impacts from the Project was conducted using the windPRO software package (EMD 2019). The Applicant is considering two different turbine models and two different turbine layouts, which are presented in **Table 4.10-3**, **Figure 4.10-1**, and **Figure 4.10-2**.

This windPRO analysis calculated the total amount of time (hours and minutes per year) that shadow flicker could occur at receptors surrounding the Project's turbines. The calculations were based on the following assumptions:

- The elevation and position geometries of the terrain, turbines, and surrounding receptors were determined using U.S. Geological Survey digital elevation model data (USGS 2017). Position geometries were determined using geographic information system data referenced to Universal Transverse Mercator Zone 11 (North American Datum of 1983).
- The position of the sun and the incident sunlight relative to the turbines and receptors on a minute-by-minute basis over the course of a year.
- The historical sunshine availability (percentage of total hours available). Historical sunshine rates for the area (as summarized by the National Climatic Data Center for Spokane, Washington) used in this analysis are presented in **Table 4.10-4** (NOAA 2019). For the purposes of shadow flicker analysis, Spokane sunshine rates serve as the most representative data set available for the Project that is compatible with the windPRO model.
- Estimated turbine operations and orientation based on on-site measured wind data, including wind speed/ wind direction frequency distribution, measured at a meteorological tower located near the center of the Project site.
- Receptor viewpoints (i.e., house windows) are assumed to always be directly facing the turbine-to-sun line of sight (i.e., "greenhouse mode").

Table 4.10-4: Historical Sunshine Availability by Month for Spokane, Washington

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
25%	37%	53%	57%	63%	65%	78%	76%	70%	54%	26%	22%

Source: Horse Heaven Wind Farm, LLC 2021b

The sun's path with respect to each turbine location is calculated by the windPRO software to determine the cast shadow paths every minute over a full year. Since shadow flicker only occurs when at least 20 percent of the sun's disc is covered by the turbine blades, windPRO uses blade dimension data to calculate the maximum distance from the turbine for which shadow flicker must be calculated. A conservative diameter of 558 feet was used for the maximum rotor diameter, resulting in a calculated maximum shadow flicker impact distance of 2,041 meters. Beyond this distance, the turbine would not contribute to the shadow flicker effect. It should be noted, however, that windPRO provides a conservative estimate of shadow flicker as it does not account for obstacles such as trees, haze, and visual obstructions (window facing, coverings) despite the likelihood of their reducing or eliminating shadow flicker impacts on receptors.

A total of 742 structures were identified as occupied or potentially occupied residences within 1.2 miles of the Project Lease Boundary. The 742 residential structures were considered to be potential shadow flicker receptors for the purpose of this analysis. A receptor in the model was defined as a 3- by 3-foot area (approximately the size

of a typical window), 3 feet above ground level. Approximate eye level was set at 5 feet. The locations of all 742 shadow flicker receptors, along with the potential Project turbine locations for Turbine Option 1 are presented in **Figure 4.10-9**.

In consideration of health impacts and industry standards, **Table 4.10-5** further describes the degrees of magnitude outlined in **Table 4.10-1** (negligible, low, medium, and high) as they relate to the light impact analysis elements that form the foundation of this assessment. As identified in **Table 4.10-5**, the determination of impact magnitude is based on flicker rates (flashes per second) and annual expected hours of exposure. The higher the flicker rate and the longer the expected hours of exposure, the greater the magnitude of impact.

Table 4.10-5: Criteria for Assessing Magnitude of Impacts from Shadow Flicker

Magnitude of Impacts	Description
Negligible	**Flicker Rates:** No flicker would be observed; therefore, the flicker rate would be zero flashes per second; -and- **Exposure:** Flicker would not be observed at these locations; therefore, zero hours of exposure.
Low	**Flicker Rates:** Flicker would be observed below 3 flashes per second at receptors; -and/or- **Exposure:** Flicker would be observed at receptors between 0 and 30 hours per year.
Medium	**Flicker Rates:** Flicker would be observed at or above 3 flashes per second at sensitive receptors; -or- **Exposure:** Flicker would be observed at sensitive receptors for 30 hours per year or more.
High	**Flicker Rates:** Flicker would be observed at or above 3 flashes per second at sensitive receptors; -and- **Exposure:** Flicker would be observed at sensitive receptors for 30 hours per year or more.

Sources: Lampeter 2011; Epilepsy Action 2022

4.10.1.3 Light Methodology

The assessment of Project-related lighting involved a review of available Project information. This information provided an estimate of the potential incremental increase in lighting that may result from the Project and would influence the current sky glow level. This incremental change, combined with assumed brightness above natural dark sky background at light receptors, was used to determine if anticipated light levels within the Project would exceed thresholds and categories for Environmental Lighting Zones (ELZ). A change in an ELZ class would signal a noticeable change in the perceived lighting conditions experienced by viewers at night.

A determination of existing light trespass, which is light or illuminance that strays from its intended purpose and potentially becomes an annoyance to nearby receptors, was qualified by assuming the amount of light trespass based on population density and surrounding land uses.

In consideration of Commission Internationale de l'Eclairage (CIE) guidelines and light trespass considerations, **Table 4.10-6** further describes the degrees of magnitude outlined in **Table 4.10-1** (negligible, low, medium, and high), as they relate to the light impact analysis elements that form the foundation of this assessment. As identified in **Table 4.10-6**, the determination of impact magnitude is based on sky glow and light trespass. These determinations are primarily informed by the brightening of the natural sky background level and the emission of light from a light source onto an adjoining property resulting from the construction, operation, and decommissioning of a project.

Table 4.10-6: Criteria for Assessing Magnitude of Impacts from Light

Magnitude of Impacts	Description
Negligible	**Light Trespass:** No observable light from the Proposed Action at off-site receptors. -and- **Sky Glow:** No degradation of sky glow.
Low	**Light Trespass:** Observable light from the Proposed Action at off-site sensitive receptors property that would not be measurable or otherwise increase lighting on that property. -and/or- **Sky Glow:** Minimal degradation of sky glow, with no change ELZ classification at non-sensitive receptors.
Medium	**Light Trespass:** Observable and measurable light from the Proposed Action at off-site dwellings. -or- **Sky Glow:** Degradation of sky glow, resulting in a change ELZ classification at non-sensitive receptors.
High	**Light Trespass:** Observable and measurable light from the Proposed Action at off-site dwellings. -and- **Sky Glow:** Degradation of sky glow, resulting in a change ELZ classification at sensitive receptors.

Source: CIE 1997
ELZ = Environmental Lighting Zones

4.10.1.4 Glare Methodology

The Solar Glare Hazard Analysis Tool (SGHAT) is considered to be an industry best practice for analysis of glare related to solar energy generating facilities. Tetra Tech utilized the SGHAT technology as part of an online tool (GlareGauge) developed by Sandia National Laboratories (Sandia) and hosted by ForgeSolar. GlareGauge provides a quantitative assessment of the following (ForgeSolar 2020):

- When and where glare has the potential to occur throughout the year for a defined solar array polygon
- Potential effects on the human eye at locations where glare is predicted

The following statement was issued by Sandia regarding the SGHAT technology:

> *"Sandia developed SGHAT v. 3.0, a web-based tool and methodology to evaluate potential glint/glare associated with solar energy installations. The validated tool provides a quantified assessment of when and where glare will occur, as well as information about potential ocular impacts. The calculations and methods are based on analyses, test data, a database of different photovoltaic module surfaces (e.g., anti-reflective coating, texturing), and models developed over several years at Sandia. The results are presented in a simple easy-to-interpret plot that specifies when glare will occur throughout the year, with color indicating the potential ocular hazard (Sandia 2016)."*

Note, however, that technology changes continue to occur to address issues such as reflectivity. The model, therefore, presents a conservative assessment based on simplifying assumptions inherent in the model, as well as industry improvements since the most recent update of such assumptions. See **Appendix 4.10-1**.

Based on the predicted retinal irradiance (i.e., intensity) and subtended angle (i.e., size/distance) of the glare source to receptor, the GlareGauge categorizes potential glare where it is predicted by the model to occur in accordance with three tiers of severity (i.e., ocular hazards) that are shown by different colors in the model output:

- Red glare: glare predicted with a potential for permanent eye damage (i.e., retinal burn)
- Yellow glare: glare predicted with a potential for temporary after-image
- Green glare: glare predicted with a low potential for temporary after-image

These categories of glare are calculated using a typical observer's blink response time, ocular transmission coefficient (i.e., the amount of radiation absorbed in the eye prior to reaching the retina), pupil diameter, and eye focal length (i.e., the distance between the retina and the place where rays intersect in the eye). As a point of comparison, direct viewing of the sun without a filter is considered to be on the border between yellow glare and red glare, while typical camera flashes are considered to be lower tier yellow glare (i.e., approximately three orders of magnitude less than direct viewing of the sun). Upon exposure to yellow glare, the observer may experience a spot in their vision temporarily lasting after the exposure. Upon exposure to green glare, the observer may experience a bright reflection but typically no spot lasting after exposure.

In consideration of Federal Aviation Administration (FAA) regulations and glare intensity outlined, **Table 4.10-7** further describes the degrees of magnitude outlined in **Table 4.10-1** (negligible, low, medium, and high), as they relate to the glare impact analysis elements that form the foundation of this assessment. As identified in **Table 4.10-7**, the determination of impact magnitude is based on impacts of glare on air travel, on road travel, and at observation points.

Table 4.10-7: Criteria for Assessing Magnitude of Impacts from Glare

Magnitude of Impacts	Description
Negligible	No potential for glare at off-site receptors or at existing or planned air traffic control tower cabs.
Low	Green glare: glare predicted with a low potential for temporary after-image at off-site receptors, at traffic control tower cabs, or along the final approach path for any existing landing threshold or future landing thresholds.
Medium	Yellow glare: glare predicted with a potential for temporary after-image at off-site receptors, at traffic control tower cabs, or along the final approach path for any existing landing threshold or future landing thresholds.
High	Red glare: glare predicted with a potential for permanent eye damage (i.e., retinal burn) at off-site receptors, at traffic control tower cabs, or along the final approach path for any existing landing threshold or future landing thresholds.

Sources: Sandia 2016; ForgeSolar 2020

4.10.1.5 Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC

(Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on visual resources are discussed in Section 2.1.3 and summarized below.

Visual Aspects

To reduce impacts on landscape character and views and to minimize any incompatibility with state and local visual management requirements, the Applicant has developed a series of best management practices (BMPs) and other mitigation measures as part of the Project's 2022 ASC. Many of these BMPs, as well as the design of the Project, incorporate mitigation measures outlined in the BLM's Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands (BLM 2013) and CESA's visual impact assessment process (CESA 2011), including (but not limited to) the following:

- Considering topography when siting wind turbines, including less rigid turbine configurations in rolling terrain responding to local topography
- Clustering or grouping turbines to break up long lines of turbines
- Striving to create visual order and unity among turbine clusters
- Maintaining operational turbines and other Project components
- Preparing an effective decommissioning plan
- Selecting appropriate paint and finish to match the existing setting

The impacts assessment also includes two different turbine options to compare one design that includes a larger number of smaller turbines (Option 1) to a design with fewer, taller turbines (Option 2). Due to the siting and operating requirements for wind turbines, there are limited mitigation measures that would considerably reduce impacts on visual resources beyond reducing the number of turbines in view. The use of the following Applicant-committed mitigation in the Project design, construction, operation, and decommissioning stages would both directly and indirectly reduce impacts on visual resources:

- Active dust suppression would be implemented during construction.
- Following completion of construction, temporarily disturbed areas (e.g., laydown yards, crane paths not used as Project access roads) would be returned to their previous conditions once construction is complete.
- Restoration of the laydown yards would involve preconstruction stripping and storing of topsoil (including weed avoidance), removing the gravel surface, regrading to preconstruction contours, restoring topsoil and de-compacting subsoils as needed, and reseeding with approved seed mixes.
- Following completion of construction, the temporary crane paths would be removed and the area restored in accordance with the Project's Revegetation and Noxious Weed Management Plan.
- The Applicant would provide a clean-looking facility free of debris and unused or broken-down equipment by storing equipment and supplies in designated areas within the operations and maintenance (O&M) facilities and promptly removing damaged or unusable equipment from the site.
- The turbines and solar arrays would be uniform in design to present a trim, uncluttered, aesthetically attractive appearance.

- The Applicant would construct support facilities with non-reflective materials in muted tones and would use white or light gray, non-reflective paint to minimize the need for daytime aviation lighting and eliminate glare from the turbines.
- After construction is completed, vegetated areas that are temporarily disturbed or removed during construction of the Project would be restored to pre-disturbance conditions as reasonably possible, in accordance with the Revegetation and Noxious Weed Management Plan.

Shadow Flicker

The Applicant has not proposed any mitigation measures for shadow flicker.

Light

For the security lighting for the solar arrays, substations, and BESS, the Applicant has committed to using the following:

- During construction, to the extent feasible, lighting would be directed toward construction activities and away from roadways or residences.
- Sensors and switches would be used to keep security lighting turned off when not required.
- All lights except aviation safety lighting would be hooded and directed downward to minimize light pollution.
- Any perimeter lighting at the O&M facilities and BESS would be activated only during maintenance or emergency activities at night.

Glare

The Applicant has committed to the following:

- The turbine towers would be painted off-white with a non-reflective coating, in accordance with FAA regulations.
- Solar arrays would have an anti-reflection coating.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC 2023b). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.10.2.5, Post-Adjudication Applicant Commitments.

4.10.1.6 Application of Impact Assessment to Project Components

The four types of potential visual or aesthetic impacts from the Proposed Action are not uniformly applicable to all Project components (for example, BESS are not a potential source of shadow flicker). **Table 4.10-8** identifies the impact type analyzed for Project components.

Table 4.10-8: Impact Analysis Applicable to Project Component

Project Component	Visual Aspects	Shadow Flicker	Light	Glare
Turbine Option 1	A	A	A	NA
Turbine Option 2	A	A	A	NA
Solar Arrays	A	NA	A	A

Table 4.10-8: Impact Analysis Applicable to Project Component

Project Component	Visual Aspects	Shadow Flicker	Light	Glare
Substations and Transmission Lines	A	NA	A	NA
Battery Energy Storage System	A	NA	A	NA
Comprehensive Project	A	A	A	A

Notes:
A = Potential impact type is applicable to Project component.
NA = Potential impact type is not applicable to Project component.

4.10.2 Impacts of Proposed Action

4.10.2.1 Impacts during Construction

The construction of the Project would introduce form, line, color, texture, scale, light, glare, and movement inconsistent with the existing landscape character and would modify views from the identified KOP locations. These short term impacts would result from construction of Project facilities, as well as new access roads and associated vegetation clearing. Because the Applicant has committed to active dust suppression, as described in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022; Section 1.10, Mitigation Measures), potential visual impacts associated with visible dust plumes are not considered in this assessment. A summary of impacts during construction is provided in **Table 4.10-14a**, with a more detailed analysis following.

Turbine Option 1

Visual Aspects

Impacts on visual resources would be elevated during construction activities, including the movement of vehicles that would attract attention, due to increased activity at temporary staging areas and throughout the Lease Boundary. The construction of access roads, crane paths, collector and communication lines, and wind turbines would be prominent when viewed within the foreground distance zone (0 to 0.5 miles) and would modify the existing landscape setting.

During construction, the removal of vegetation and earthwork would introduce areas of exposed soil, which would contrast with the existing setting until the area has been revegetated. The construction of access roads in the level to rolling terrain in the analysis area would require minimal modification of the existing terrain, resulting in negligible long term visual impacts. Impacts common to all KOPs during construction would include views of additional vehicular traffic and areas of exposed soil after the removal of vegetation and during earthwork activities. Viewers in the foreground distance zone (0 to 0.5 miles), or in locations where views would be occupied by a large portion of the Project under construction, would result in increased visual contrast in these views.

These impacts would be most intense during the 23-month construction schedule (as described in the 2022 ASC and in Chapter 2 of this EIS) and would diminish after construction is complete and vegetation has been re-established. Following the initial seeding, completed after construction, the Applicant would continue to monitor these revegetation areas for a minimum of three years and apply remedial actions to meet the success criteria outlined in Appendix N of the 2022 ASC (Horse Heaven Wind Farm, LLC 2022). Construction activities for Turbine Option 1 would have medium, short term, probable, local impacts on visual resources.

Light

The Project would generate minimal light during construction under Turbine Option 1 from vehicles and equipment. Construction work would be concentrated during daylight hours, minimizing or eliminating the potential need for temporary nighttime lighting. Given this, light from construction would have negligible, temporary, unlikely, and limited impacts on off-site or sensitive receptors.

Glare

Similar to lighting, construction under Turbine Option 1 would generate minimal glare from vehicle and equipment windshields or glass enclosures. Therefore, glare from construction under this option would have low, temporary, feasible, and confined impacts on off-site or sensitive receptors.

Turbine Option 2

Visual Aspects

Impacts would be similar to Turbine Option 1. Because Option 2 would involve fewer wind turbines and require less ground disturbance for construction, it would result in less contrast and fewer modifications to the existing landscape character introduced during Project construction when compared to Turbine Option 1. However, the ratings of impacts are consistent between the two turbine options as construction of either option would occupy a large portion of the landscape, contrasting with its existing character. Construction activities for Turbine Option 2 would have medium, short term, probable, local impacts on visual resources.

Light

The Project would generate minimal light related to vehicles and equipment during construction under Turbine Option 2. Construction work would be concentrated during daylight hours, minimizing or eliminating the potential need for temporary nighttime lighting. Given this, light from construction would have negligible, temporary, unlikely, and limited impacts on off-site or sensitive receptors.

Glare

Similar to lighting, construction under Turbine Option 2 would generate minimal glare from vehicle and equipment windshields or glass enclosures. Therefore, glare from construction under this option would have low, temporary, feasible, and confined impacts on off-site or sensitive receptors.

Solar Arrays

Visual Aspects

The construction of the solar arrays would result in impacts similar to those of the wind turbines but would occur within a smaller, more defined area associated with the selected solar array site. Within the fenced boundary, all lands would be disturbed through earthwork, vegetation clearing, and other construction efforts. Application of mitigation measures would reduce these impacts to the extent practicable to minimize these short term visual impacts, as described in Section 4.10.2.4. Construction activities for the solar arrays would have low, short term, probable, local impacts on visual resources.

Light

The Project would generate minimal light related to vehicles and equipment during construction of the solar arrays. Construction work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, light from construction of this Project component would have negligible, temporary, unlikely, and limited impacts on off-site or sensitive receptors.

Glare

Similar to light, the Project would generate minimal glare during construction of solar arrays from vehicle and equipment windshields or glass enclosures. Installation of the solar arrays would cause glare for a short time before construction ends and operation begins. Therefore, glare from construction of this Project component would have low, temporary, feasible, and confined impacts on off-site or sensitive receptors.

Battery Energy Storage Systems

Visual Aspects

Impacts related to construction of the BESS would be similar to those of the solar arrays and substations, with the proposed BESS sites located adjacent to the proposed substation locations. Construction of the BESS would introduce additional motion from construction equipment into the setting. Additionally, the removal of vegetation and earthwork would introduce areas of exposed soil, which would contrast with the existing setting until vegetation has been restored. Construction activities for the BESS would have low, short term, probable, local impacts on visual resources.

Light

Vehicles and equipment used for construction of the BESS would generate minimal light. Construction work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, light from construction of this Project component would have negligible, temporary, unlikely, and limited impacts on off-site or sensitive receptors.

Glare

Similar to lighting, construction of BESS would generate minimal glare from vehicle and equipment windshields or glass enclosures. Therefore, glare from construction of this Project component is expected to have low, temporary, feasible, and confined impacts on off-site or sensitive receptors.

Substations and Transmission Lines

Visual Aspects

Impacts from construction of the substations would be similar to the solar arrays, with the addition of multiple linear transmission lines connecting the substations to the existing electrical grid. The construction of the transmission lines would include vegetation clearing within the right-of-way and construction of a series of tall, vertical structures. During construction, the motion associated with construction equipment, structure building, and conductor stringing, as well as vegetation clearing and landform modification would be noticeable and create visual contrast within the viewshed. Construction activities for the substations and transmission lines would have, low, short term, probable, local impacts on visual resources.

Light

The Project would generate minimal light during the construction of substations and transmission lines from vehicles and equipment. Construction work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, light from construction of this Project component would have negligible, temporary, unlikely, and limited impacts on off-site or sensitive receptors.

Glare

Similar to lighting, substation and transmission line construction would generate minimal glare from vehicle and equipment windshields or glass enclosures. Therefore, glare from construction of this Project component would have low, temporary, feasible, and confined impacts on off-site or sensitive receptors.

Comprehensive Project

Visual Aspects

During the 23-month construction schedule, there would be short term impacts from construction activities occupying a large portion of the landscape when considering all of the Project components combined (i.e., wind turbines, solar arrays, collector lines, access road, multiple transmission lines and substations, O&M facility, and the BESS). This would include views, glare, and lighting of additional vehicular traffic, as well as areas of exposed soil after the removal of vegetation and during earthwork activities. The removal of vegetation would be noticeable in the setting and contrast with the existing character; however, over time, after the temporary disturbance areas have been revegetated, vegetation patterns would begin to repeat those common in the area.

Viewpoints and KOPs located within the foreground distance zone (0 to 0.5 miles) would be most impacted by the construction of multiple Project components, particularly when a large portion of their viewshed is occupied by construction activities. These short term impacts are anticipated to extend beyond the neighboring receptors, resulting in potential regional impacts from more distant viewpoints where concurrent construction activities associated with multiple project components would occupy a large portion of their viewshed. Construction disturbance would be limited to the extent practicable in accordance with BMPs and the Project's site certificate conditions. After construction is completed, areas of temporary disturbance, including temporary access roads no longer used as Project access roads, would be restored to appear similar to their original condition. In general, vegetated areas that are temporarily disturbed or removed during construction of the Project would be revegetated to blend with adjacent undisturbed lands, and these areas would be monitored for a minimum of three years postconstruction to meet a series of success criteria outlined in the Project's Revegetation and Noxious Weed Management Plan (Horse Heaven Wind Farm, LLC 2022; Appendix N). Areas with soil compaction and disturbance from construction activities would also be revegetated in accordance with the Project's Revegetation and Noxious Weed Management Plan.

In summary, activities during construction of all components of the Project would result in medium, short term, probable, regional impacts on visual resources.

Light

During the construction stage of the Project, work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting from vehicles, equipment, or temporary lighting. Additionally, construction at any given location would be temporary, as construction activities would move across the site from location to location and would not remain at any single location for the duration of the construction stage. Therefore, light from construction of this Project component would have negligible, temporary, unlikely, and limited impacts on off-site or sensitive receptors.

Glare

Similar to lighting, the Project would generate minimal glare during the construction stage from vehicle and equipment windshields or glass enclosures. Glare from solar panels during installation would cause glare for a short time before construction ends and operation begins. Therefore, glare from construction of the Project

components combined is expected to have low, temporary, feasible, and confined impacts on off-site or sensitive receptors.

4.10.2.2 Impacts during Operation

The introduction of the Project into the setting would result in long term modifications to the existing landscape's form, line, color, texture, and shadow flicker and would modify views from the identified KOP locations to varying degrees. Project operation would also introduce new sources of light and glare. Although visual impacts would depend on a variety of viewing conditions, the impacts would tend to change considerably with distance. These effects would be most impactful on residential, travel route, and recreational viewers located within the foreground distance zone (0 to 0.5 miles) where the Project would create strong vertical and horizontal forms and lines that would contrast with the primarily organic forms of the existing setting. There are 15 residences, mostly located on participating properties, that would have foreground views (less than 0.5 miles) of the turbines and/or solar arrays. Two residences on non-participating properties would have foreground views of the turbines, while no residences on non-participating properties would have views of the solar arrays. One residence on a participating property would have foreground views of both the turbines and solar arrays, while an additional two residences on participating properties would have foreground views of the solar arrays. The remaining ten residences on participating properties would have foreground views of the turbines.

Impacts on views from the middle ground (0.5 to 5 miles) would vary based on the extent of existing modifications in view. For locations with views of the existing Nine Canyon Wind Project, or where the existing transmission lines already dominate the view, the Project would typically result in medium impacts and would be viewed as co-dominant within the existing setting. From viewpoints where existing modifications do not currently attract attention, the Project would dominate views since a large portion of the viewshed would typically be occupied by large, spinning wind turbines. From this distance, the individual turbines tend to visually "merge" with other turbines in the string from some viewing angles, resulting in the turbines appearing larger in mass and scale.

From more distant views, within the background distance zone (more than 5 miles away), the wind turbines would appear as vertical lines with a faint spinning motion of the blades, particularly when seen skylined above ridges or other highpoints within the landscape. The solar arrays and other Project components would be mostly indiscernible from the background distance zone.

See **Figures 4.10-3 through 4.10-8** for the results of the viewshed analyses by Project component. A summary of impacts during operation is provided in **Table 4.10-14b**, with a more detailed analysis following.

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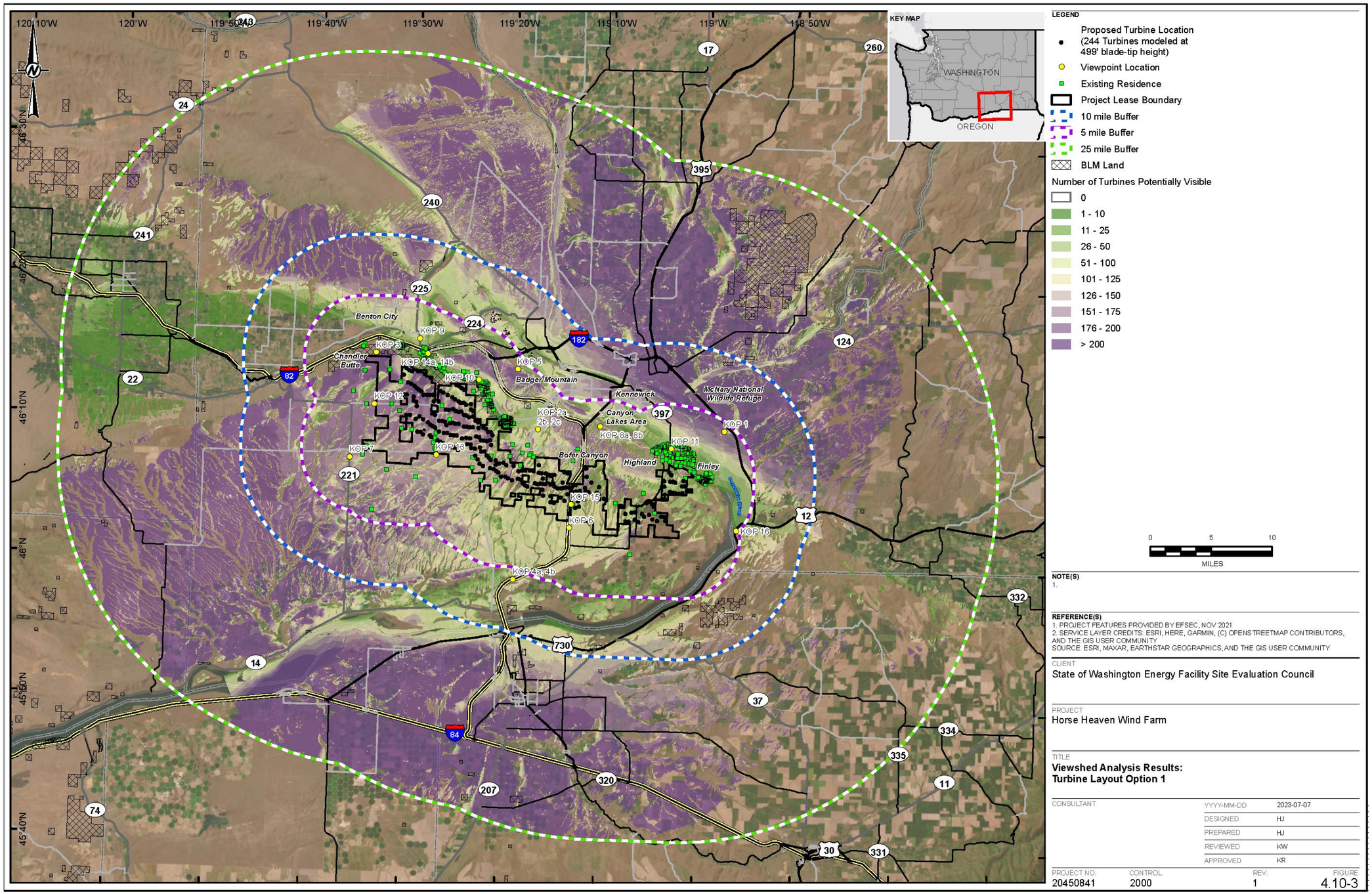


NOTE(S)
1.

REFERENCE(S)
1. PROJECT FEATURES PROVIDED BY EFSEC, NOV 2021
2. SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

CLIENT
State of Washington Energy Facility Site Evaluation Council

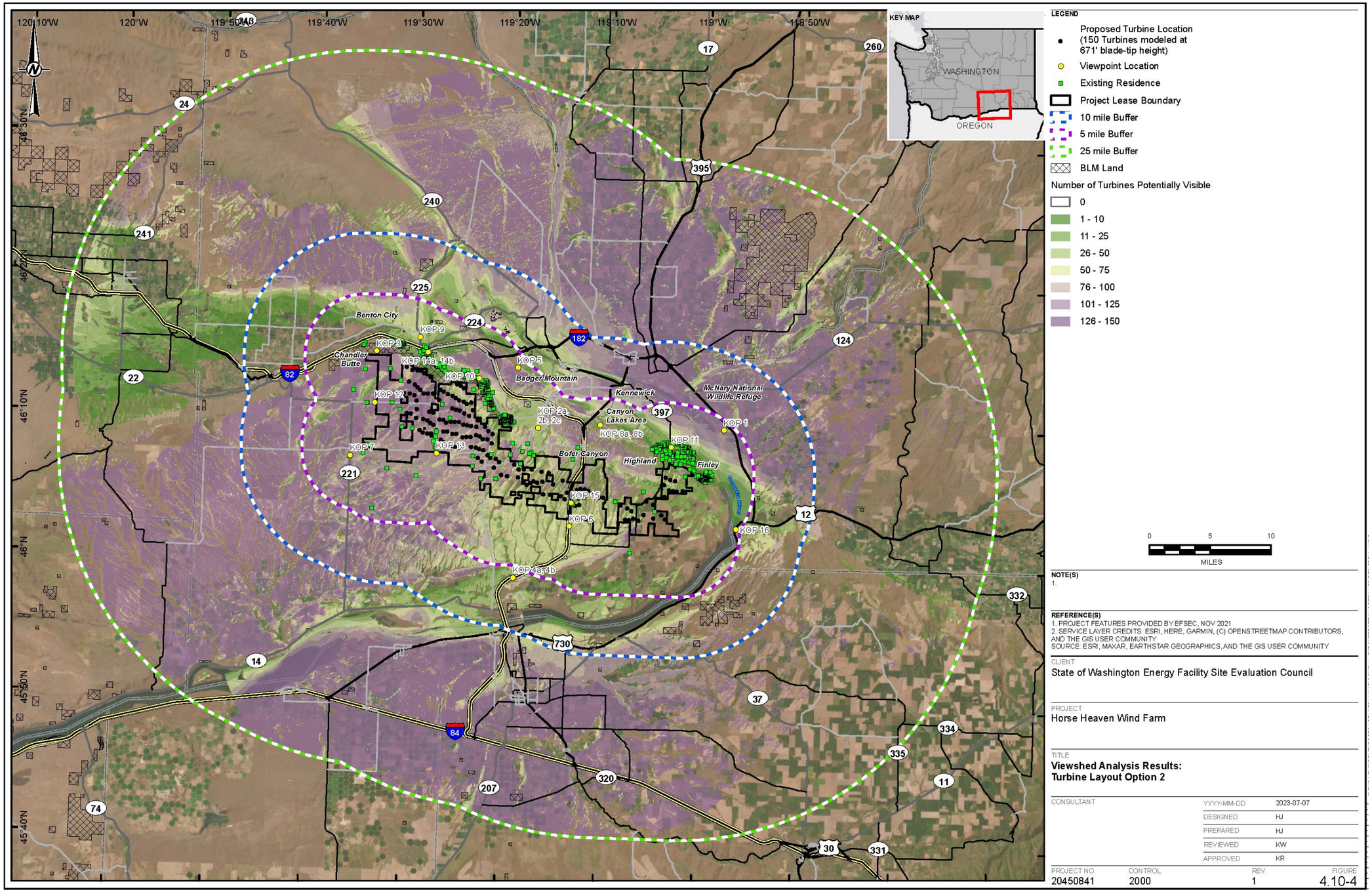
PROJECT
Horse Heaven Wind Farm

TITLE
Viewshed Analysis Results: Turbine Layout Option 1

CONSULTANT			
	YYYY-MM-DD	2023-07-07	
	DESIGNED	HJ	
	PREPARED	HJ	
	REVIEWED	KW	
	APPROVED	KR	
PROJECT NO. 20450841	CONTROL 2000	REV. 1	FIGURE 4.10-3

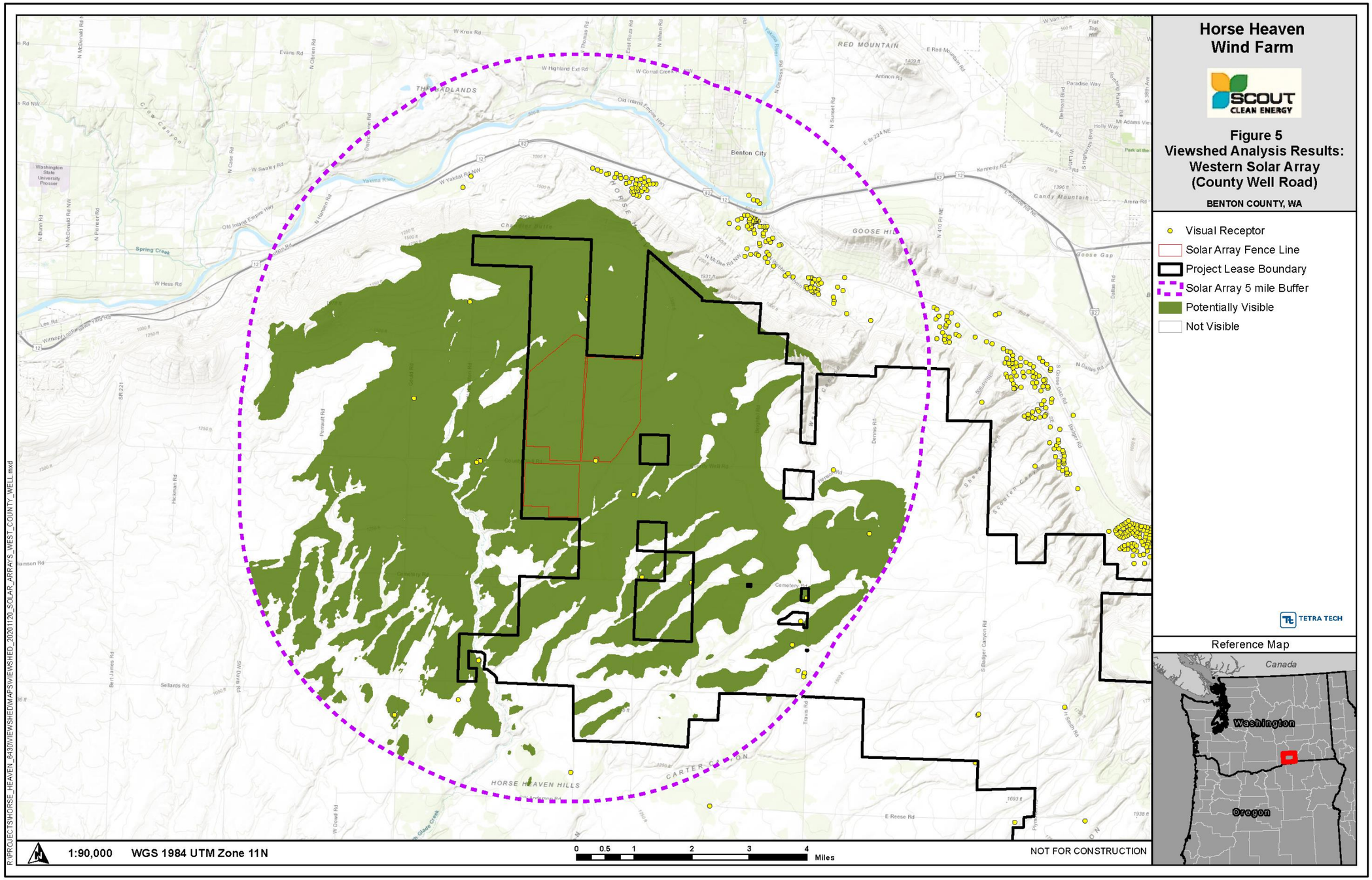
Source: SWCA 2023

Figure 4.10-3: Viewshed Analysis Results: Turbine Layout Option 1



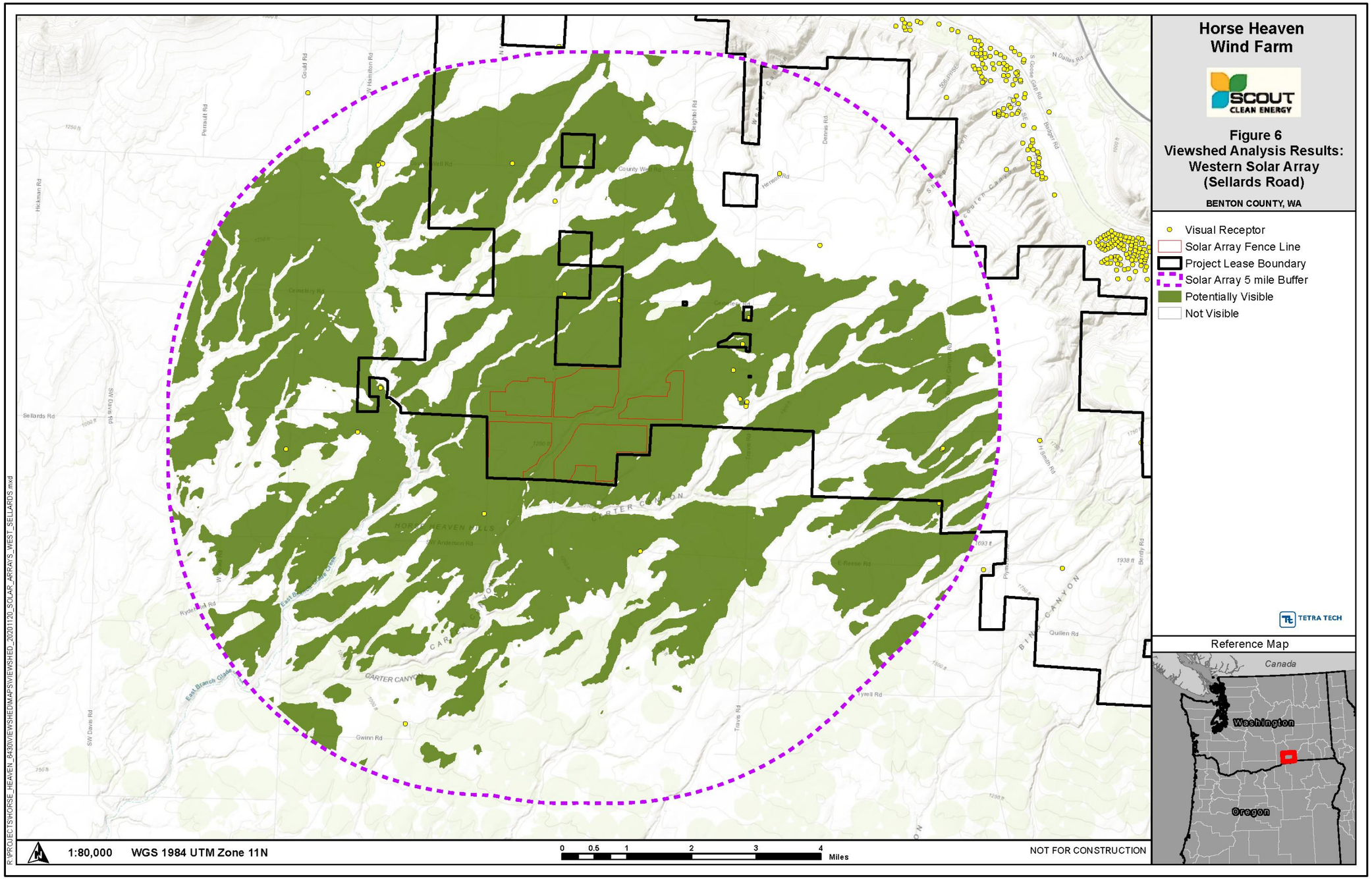
Source: SWCA 2023

Figure 4.10-4: Viewshed Analysis Results: Turbine Layout Option 2



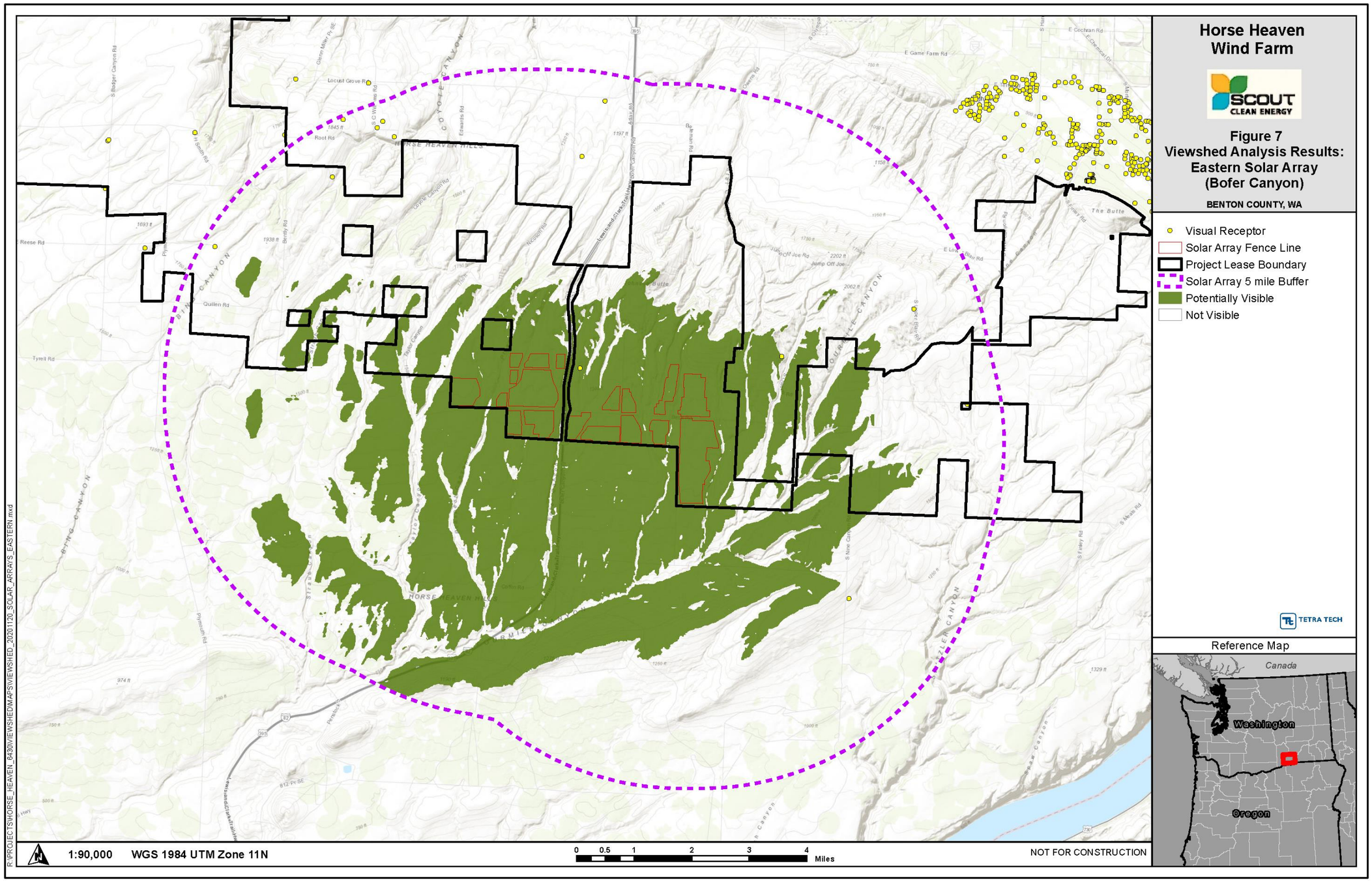
Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.10-5: Viewshed Analysis Results: Western Solar Array (County Well Road)



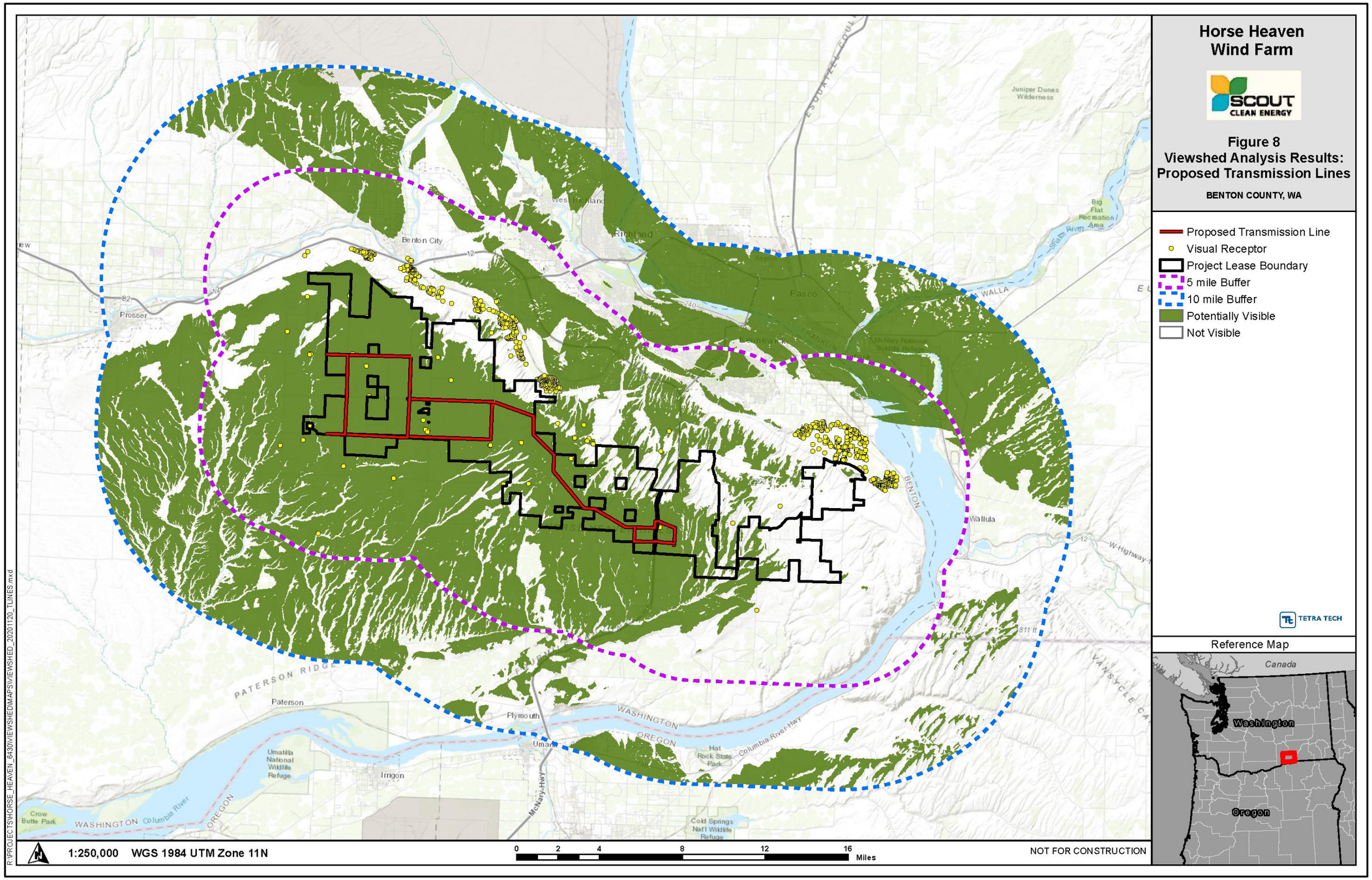
Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.10-6: Viewshed Analysis Results: Western Solar Array (Sellards Road)



Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.10-7: Viewshed Analysis Results: Eastern Solar Array (Bofer Canyon)



Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.10-8: Viewshed Analysis Results: Proposed Transmission Lines

Turbine Option 1

Visual Aspects

Under Turbine Option 1, impacts on landscape character would range from medium to high. The Project would generally dominate the existing landscape character through the introduction of a large number of vertical protrusions that would be out of scale with and highly prominent in the landscape. The turbines would be most prominent where sited near the Horse Heaven Hills ridgeline, resulting in high impacts on landscape character. These structures would also introduce spinning movement into the landscape, which would attract attention throughout the area of analysis—particularly where the existing Nine Canyon Wind Project is not visible. Impacts on landscape character would be medium near the existing Nine Canyon Wind Project, since this portion of the landscape—particularly the area east of I-82—has already been modified. In general, the existing level of landscape intactness would be diminished, resulting in landscapes characterized by energy generation, compared to the existing agrarian landscape character.

Impacts on key views would range from medium to high. **Table 4.10-9** provides an overview of the impacts from each KOP/viewpoint and includes the viewer position, extent of the horizontal view occupied by the Project, level of contrast, and magnitude of impact.

In summary, activities during operation under Turbine Option 1 would result in areas of high, long term, unavoidable, regional impacts on visual resources.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
1	McNary NWR	Recreation	5.2 miles	Inferior	80 degrees	Moderate	Medium	The proposed turbines would be similar in appearance to the existing Nine Canyon Wind Project, also visible from this location, but the proposed turbines would be larger and out of scale with the existing landscape. Views would be unobstructed toward the Lease Boundary. The prominence of the proposed wind turbines rising above the landscape, including additional motion introduced by the spinning turbine blades, would further attract attention from viewers and dominate the existing landscape character. Because visitors and travelers would be visiting for a limited time, the level of contrast would be reduced by the short view duration, limiting the influence of the Project on these views. The Project would expand the extent of view occupied by moving wind turbines and would be prominent from this inferior viewing angle, resulting in medium, long term impacts on views.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
2	S Clodfelter Road – East, Central, and West	Residential	3.0 miles	Inferior	200 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 3 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed. Views toward the east would include the existing Nine Canyon Wind Project, which occupies only a narrow portion of the landscape as viewed from this location. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.
3	Chandler Butte	Recreation	2.5 miles	Superior	50 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 2.5 miles away, as a moderate portion of the viewshed would include moving wind turbines. Views of the Project in an open plains landscape would be unobstructed, with views of the existing Nine Canyon Wind Project occurring approximately 20 miles away on the distant hills. Due to the superior viewing angle, the contrast between the light color of the turbines and the agricultural fields would create strong visual contrast, visible to recreationists along Chandler Butte. The series of proposed wind turbines would be highly prominent in the view, resulting in high, long term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
4	I-82 South	Travel route	7.0 miles	Inferior	100 degrees	Moderate	Medium	The proposed turbines would attract attention from this location, approximately 7 miles away, as a large portion of the viewshed would include moving wind turbines. Due to the distance, the turbine's form would be distinguishable, but the texture and color would be muted and less detailed. Views from I-82 include an existing transmission line and the Nine Canyon Wind Project, approximately 12 miles away, with these existing features influencing but not dominating views from this location. As travelers drive on I-82 from this point to KOP 6, approximately 10 miles, impacts on views of the proposed wind turbines would incrementally increase. From this location, the turbines would be viewed unobstructed and skylined, which would attract attention, particularly where only moving turbine blades would be seen over the horizon. The impacts on these views would be medium and long term.
5	Badger Mountain	Recreation	4.7 miles	Level	150 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 5 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed, occurring beyond developed lands of Badger and the Horse Heaven Hills ridgeline. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
6	Bofer Canyon Road/I-82	Travel route	1.7 miles	Level	120 degrees	Strong	High	The proposed turbines would be viewed within the context of an existing transmission line from this KOP. The existing transmission line has introduced strong vertical lines into the existing setting. Due to the proximity of the proposed turbines (less than 2 miles), the introduction of movement into the landscape, and the extent of view occupied by these structures, the Project would dominate views from this location along Bofer Canyon Road and I-82. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the proposed turbines would be highly prominent as viewed both to the east and west. Based on the landscape modifications introduced by the proposed wind turbines, the Project would result in high, long term impacts on views.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
7	Highway 221	Travel route, residential	5.8 miles	Level	70 degrees	Moderate	Medium	The proposed turbines would be viewed within the context of a distant existing transmission line, which has introduced a series of skylined structures along the horizon. The proposed turbines would, however, appear larger and out of scale with the features of the existing landscape. Views would be unobstructed toward the Lease Boundary. The prominence of the proposed wind turbines rising above the landscape, including the introduction of motion, would further attract attention from viewers and modify the existing landscape character. The Project would be prominent within a moderate portion of the viewshed, resulting in medium, long term impacts on views.
8	Kennewick (Canyon Lakes Area) – South and West	Residential	3.6 miles	Inferior	170 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 3.5 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed toward the west and would include an existing transmission line. Views to the southeast include the existing Nine Canyon Wind Project, which occupies a narrow portion of the landscape as viewed from this location. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [a]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
9	Benton City	Residential, travel route, commercial	2.7 miles	Inferior	10 to 80 degrees (based on level of screening)	Moderate	Medium	The proposed wind turbines would be intermittently screened by development within Benton City, with partial screening of the Project features occurring where the Horse Heaven Hills would partially obstruct views to the south. Where visible, there would be a limited number of turbines in view, as depicted in the visual simulation.[b] The presence and motion of the turbines would attract attention but would appear co-dominant with other commercial and residential developments. Other areas within the city may have more expansive, unobstructed views of the proposed wind turbines, similar to KOPs 2 and 10. The Project would expand the extent of view occupied by moving wind turbines and would be prominent from this inferior viewing angle, resulting in medium, long term impacts on views.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
10	Badger Road	Residential, travel route	1.5 miles	Inferior	150 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 1.5 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the proposed wind turbines, from an inferior viewing angle, would be partially screened by topography and intermittently screened by development. Movement associated with the turbine blades would be highly visible, particularly where only the blades would visible, repeatedly rising over the hills. Based on the level of contrast introduced by the proposed wind turbines, which are much larger in scale than existing modifications in view, the Project would result in high, long term impacts on views.
11	Highland/ Finley Area	Residential	2.0 miles	Inferior	100 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 2 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project on the Horse Heaven Hills would be unobstructed, with views toward the southwest including residential and agricultural development, as well as the existing Nine Canyon Wind Project, which occupies a moderate portion of the landscape as viewed from this location. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
12	County Well Road	Residential, travel route	2.5 miles	Level	100 degrees	Moderate	Medium	The proposed turbines would be viewed in the context of an existing transmission line, which has already modified the existing setting, including the introduction of distinct, vertical lines. Due to the proximity of the proposed turbines (approximately 2.5 miles), the introduction of movement into the landscape, and the extent of view occupied by these structures, the Project would attract attention and begin to dominate views from this location. In consideration of the existing modifications in view, the Project would result in medium, long term impacts on views from this location. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the proposed wind turbines would be prominent.
13	Travis Road South of Sellards Road	Residential, travel route	1.1 miles	Level	150 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 1 mile away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed within a mostly intact existing landscape. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
14	South of Benton City	Residential	1.7 miles	Inferior	90 degrees	Strong	High	Compared to KOP 9, views toward the Lease Boundary from this portion of Benton City are mostly unobstructed. The proposed turbines would dominate views from this location, approximately 1.7 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the proposed wind turbines, from an inferior viewing angle, would be partially screened by topography, including turbines that are visible to the southeast. Movement associated with the turbine blades would be highly visible, particularly where only the blades would be visible, repeatedly rising over the hills. Based on the level of contrast introduced by the proposed wind turbines, which are much larger in scale than existing modifications in view, the Project would result in high, long term impacts on views.
15	I-82	Travel route	0.7 miles	Inferior	180 degrees	Strong	High	The proposed turbines would dominate views from this location, less than 1 mile away, as views to the east, north, and west would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed within a landscape modified by the presence of the interstate highway and a communication tower. The prominence of the proposed wind turbines rising above the landscape, including additional motion introduced by the turbine blades, would further attract attention from viewers and dominate the existing landscape character, resulting in high, long term impacts on views from these locations.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
16	U.S. Highway 730 – Wallula Gap	Travel route	5.0 miles	Inferior	0 degrees	None	Negligible	The proposed turbines would be screened by topography as viewed from this location, approximately 5 miles away. Based on this level of screening, Project elements would not be visually evident from this location.
N/A	Dispersed residences located 0.5 miles from proposed turbines (foreground views)	Residential	Less than 0.5 miles	Level	Up to 300 degrees	Strong	High	The proposed turbines would dominate views from dispersed residences located within the foreground distance zone (includes views from participating and non-participating properties). These views would be most impacted where views of the existing Nine Canyon Wind Project, and existing transmission lines would be screened, with the proposed turbines dominating a viewshed with limited existing modifications. The prominence of the proposed wind turbines rising above the landscape, including additional motion introduced by the turbine blades, would further attract attention from viewers and dominate the existing landscape character, resulting in high, long term impacts on views from these locations. Viewers located on participating properties may have less visual sensitivity to modifications introduced by the Project, compared to viewers located on non-participating properties, but the level of visual contrast and Project dominance would remain the same.

Table 4.10-9 Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
N/A	Horse Heaven Hills Recreation Area	Recreation	0.8 miles	Superior, level, and inferior	Up to 140 degrees	Strong	High	Views from the Horse Heaven Hills Recreation Area vary based on location, with elevated views represented by KOP 3, located on Chandler Butte, to inferior views occurring below the ridgeline and similar to KOPs 9 and 10. In general, views from this recreation area would be highly impacted where the Project would modify a large portion of the viewshed through the introduction of moving wind turbines. While hiking on trails below the ridge but within the recreation area, views may be partially screened by topography where visitors would only see the moving turbine blades repeatedly rising over the ridgeline, as described for KOP 10. Viewers along the ridgeline trail would be located directly adjacent to the proposed turbines, where views would be strongly altered by the Project. The series of proposed wind turbines would be highly prominent in the view, resulting in high, long term impacts on views from Chandler Butte, below the ridgeline trails, and from the ridgeline trail.

Notes:
[(a)] For more information associated with each KOP location, refer to Table 3.10-2.
[(b)] Horse Heaven Wind Farm, LLC 2022
I-82 = Interstate 82; KOP = key observation point; N/A = not appliable; NWR = National Wildlife Refuge

Shadow Flicker

The windPRO program predicted that shadow flicker impacts would be greatest at locations nearest to the turbines. The shadow flicker impact area for Turbine Option 1 is shown in **Figure 4.10-9**. **Table 4.10-10** presents the windPRO-predicted shadow flicker impacts for the receptors with the greatest (maximum) predicted impacts. The predicted shadow flicker impacts for all 742 receptors for both turbine option layouts are presented in the ASC (Horse Heaven Wind Farm, LLC 2021b).

Table 4.10-10: windPRO Maximum Expected Shadow Flicker Impacts for Turbine Option 1

Receptor ID	Participation Status[(a)]	UTM Coordinates (meters)		Expected Shadow Flicker in Hours per Year (h:mm)
		Easting	Northing	
177	Participant	310436.37	5114156.19	55:07
214	Participant	317662.95	5111107.33	51:55
176	Participant	310274.46	5113505.54	38:12
223	Participant	315253.07	5110907.42	30:34
141	Participant	310040.91	5112851.79	27:43
222	Participant	315230.93	5110885.00	24:23

Source: Horse Heaven Wind Farm, LLC 2021b
Note:
[(a)] Participant = participating landowners, with whom the Applicant has lease agreements
h:mm = hours and minutes per year; ID = identification number; UTM = Universal Transverse Mercator

The maximum predicted shadow flicker impact at a single receptor is 55 hours and 7 minutes per year (Receptor ID 177) for Turbine Option 1. This highest predicted shadow flicker impact is approximately 1.3 percent of the potential available daylight hours in any given year at the Project location. Four receptors were predicted to experience more than the industry standard threshold of 30 hours of shadow flicker per year (Receptor IDs 176, 177, 214, and 223). All four receptors have been identified as Project participants.

From a health impact perspective, Epilepsy Action (the working name for the British Epilepsy Foundation) states that while some people are sensitive to flicker rates of 3 hertz (Hz; or flashes per second) or higher, large turbines rotate at a rate that is unlikely to trigger seizures (Epilepsy Action 2022). The Project's maximum turbine blade pass frequency would be approximately 0.79 Hz (i.e., less than one alternation per second) (Horse Heaven Wind Farm, LLC 2021b); therefore, no negative health impacts on individuals with photosensitive epilepsy are anticipated.

The analysis conducted by the Applicant was deliberately conservative, and actual shadow flicker is expected to occur for less than the modeled durations. The analysis assumes that the receptors all have a direct in-line view of the incoming shadow flicker sunlight, and it does not account for trees or other obstructions that may block sunlight. In reality, the windows of many houses will not face the sun directly for the key shadow flicker impact times (Horse Heaven Wind Farm, LLC. 2021b). Based on these results, shadow flicker during operation under Turbine Option 1 would result in medium, long term, probable, confined impacts on receptors that have been identified as Project participants.

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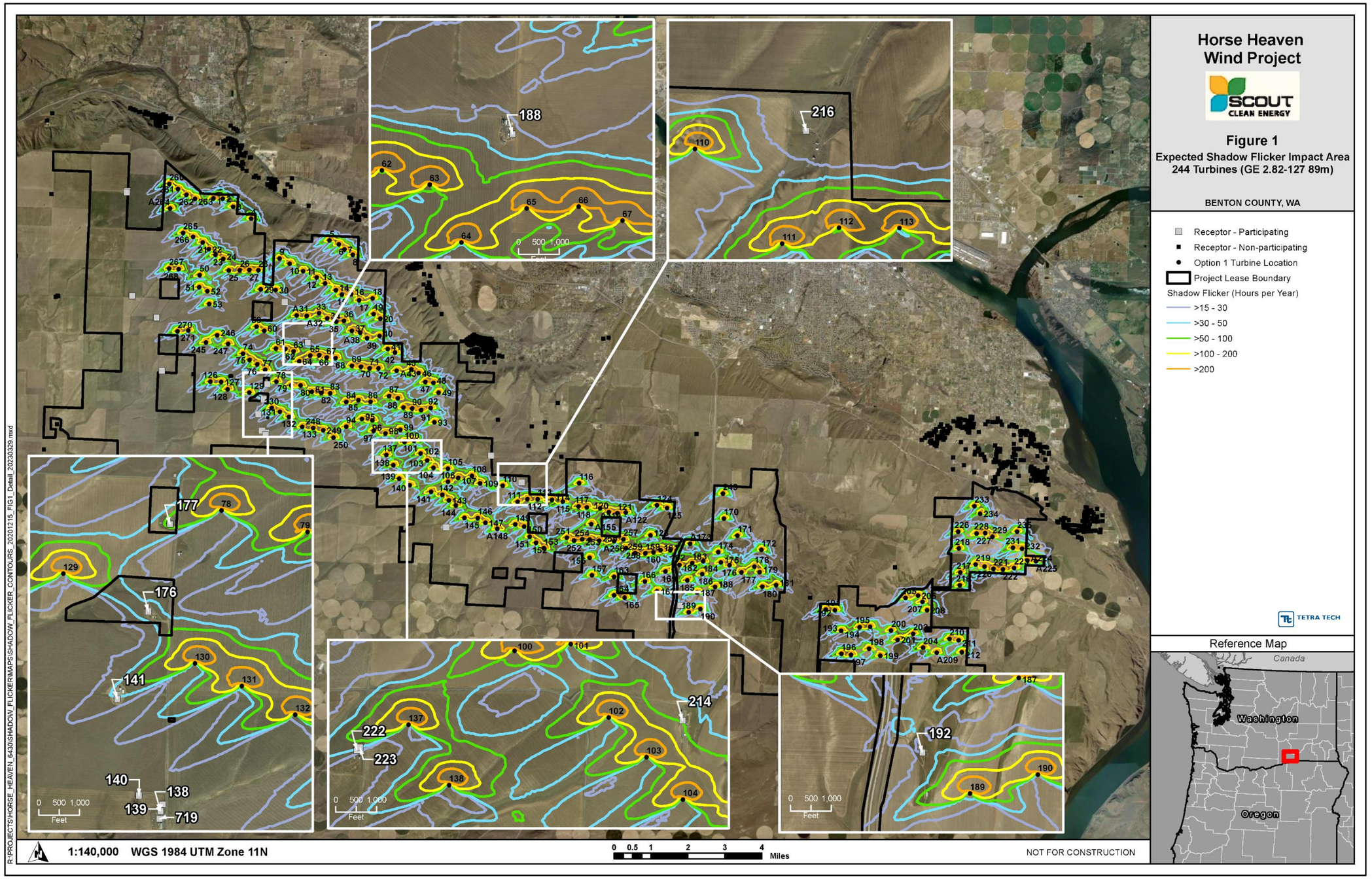

Source: Horse Heaven Wind Farm, LLC 2023a

Figure 4.10-9: Expected Shadow Flicker Impact Area Turbine Option 1 (GE 2.82-127 89m)

Light

Aviation lighting of a single red flashing light would be mounted on turbine nacelles per FAA requirements for turbines with a maximum blade tip height of 499 feet (FAA 2020). The Applicant is anticipating lighting approximately 86 percent (or up to 210 of the 244 turbines) based on the most recent turbine layout (Kobus 2022). This is subject to change. Additionally, up to four permanent meteorological towers would also be lighted as specified by the FAA. These lights would be most visible at night, akin to lighted communication towers common to the area. While visible in the distance, these lights would not measurably increase light received at neighboring receptors. Over such a large area, the addition of 210 lights is not expected to cause light trespass, nor add to sky glow. Additionally, recently passed state legislation requires that new wind turbine project apply with the FAA to have Aircraft Detection Lighting Systems (ADLS) installed that would turn of tower lighting when aircraft are not in the area of the Project (HB 1173, 2023).

Lighting from operations under Turbine Option 1 would not result in a safety hazard, and impacts would be low, long term, unavoidable, and local.

Turbine Option 2

Visual Aspects

The Project, under Turbine Option 2, would have high impacts on landscape character, similar to those under Turbine Option 1. Turbine Option 2 would introduce fewer structures into the setting, which would result in less visual clutter; however, due to the greater impacts of the increased height of the structures under Turbine Option 2, the overall effects would be similar. The additional height of the turbines under Turbine Option 2 would be more prominent near the Horse Heaven Hills ridgeline or adjacent to existing landscape modifications, where the increased vertical forms would be most evident.

Table 4.10-11 describes the impacts on views from the KOPs and other viewing locations associated with Turbine Option 2. In summary, activities during operation of Turbine Option 2 would result in areas of high, long-term, unavoidable, regional impacts on visual resources..

Table 4.10-11. Key Observation Point/Viewpoint Impact Table – Turbine Option 2

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
1	McNary NWR	Recreation	5.8 miles	Inferior	80 degrees	Moderate	Medium	Impacts would be similar to Option 1, except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, but since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the Project would result in medium, long term impacts on views.
2	S Clodfelter Road – East, Central, and West	Residential	3.5 miles	Inferior	200 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered view would be counterbalanced, resulting in high, long term impacts on views.
3	Chandler Butte	Recreation	2.8 miles	Superior	50 degrees	Strong	High	Impacts would be similar to Option 1, except the taller turbines would be more prominent across the landscape. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered view would be counterbalanced, resulting in high, long term impacts on views.

Table 4.10-11. Key Observation Point/Viewpoint Impact Table – Turbine Option 2

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
4	I-82 South	Travel route	7.3 miles	Inferior	100 degrees	Moderate	Medium	Impacts would be similar to Option 1 except the taller turbines would result in fewer turbines within view. The presence of fewer turbines would produce a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered appearance would be counterbalanced, resulting in medium, long term impacts on views.
5	Badger Mountain	Recreation	4.7 miles	Level	150 degrees	Strong	High	Impacts would be similar to Option 1, except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. The relative scale of the turbines proposed for Option 2, compared to Option 1, would be apparent as views include residential and agricultural development, providing a source of scale comparison.
6	Bofer Canyon Road/I-82	Travel route	1.8 miles	Level	120 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing transmission line providing a source of scale comparison, and most of the turbines proposed adjacent to this viewpoint would occur regardless of the option selected.

Table 4.10-11. Key Observation Point/Viewpoint Impact Table – Turbine Option 2

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
7	Highway 221	Travel route, residential	5.8 miles	Level	70 degrees	Moderate	Medium	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from the highway. There would be fewer turbines in view, resulting in a less cluttered appearance, but since the proposed turbines would be larger in scale (and even larger as compared to the existing transmission line in view), the Project would result in medium, long term impacts on views.
8	Kennewick (Canyon Lakes Area) – South and West	Residential	5.4 miles	Inferior	170 degrees	Moderate	Medium	Impacts on views would be reduced under Option 2, as the closest proposed wind turbine would be1.8 miles further away compared to Option 1 (approximately 3.6 miles). There would also be fewer turbines in view, resulting in a less cluttered appearance. However, since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the Project would result in medium, long term impacts on views.
9	Benton City	Residential, travel route, commercial	2.7 miles	Inferior	10 to 80 degrees (based on level of screening)	Moderate	Medium	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be more prominent, and most of the turbines proposed adjacent to this viewpoint would occur regardless of the option selected.
10	Badger Road	Residential, travel route	1.5 miles	Inferior	150 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from this area. There would be fewer turbines in view, resulting in a less cluttered appearance, but since the proposed turbines would be larger in scale, (and even larger as compared to the existing modifications in view), the Project would result in high, long term impacts on views.

Table 4.10-11. Key Observation Point/Viewpoint Impact Table – Turbine Option 2

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
11	Highland/ Finley Area	Residential	2.5 miles	Inferior	100 degrees	Strong	High	Impacts would be similar to Option 1, except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered appearance would be counterbalanced, resulting in high, long term impacts on views.
12	County Well Road	Residential, travel route	2.5 miles	Level	100 degrees	Moderate	Medium	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing transmission line that provides a source of scale comparison.
13	Travis Road South of Sellards Road	Residential, travel route	1.1 miles	Level	150 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing development in view, which provides a source of scale comparison.
14	South of Benton City	Residential	1.7 miles	Inferior	90 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be more prominent, and most of the turbines proposed adjacent to this viewpoint would occur regardless of the option selected.
15	I-82	Travel route	0.7 miles	Inferior	180 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing communication tower in view, which provides a source of scale comparison.

Table 4.10-11. Key Observation Point/Viewpoint Impact Table – Turbine Option 2

KOP # [(a)]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
16	U.S. Highway 730 – Wallula Gap	Travel route	5.0 miles	Inferior	0 degrees	None	Negligible	The proposed turbines would be screened by topography as viewed from this location approximately 5 miles away. Based on this level of screening, Project elements would not be visually evident from this location.
N/A	Dispersed residences located 0.5 miles from proposed turbines (foreground views)	Residential	Less than 0.5 miles	Level	Up to 300 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from these residences. There would be fewer turbines in view, resulting in a less cluttered appearance. Since the proposed turbines would be larger in scale, the Project impacts would be most apparent where the existing Nine Canyon Wind Project or transmission lines are visible and provide a source of scale comparison. The Project would result in high, long term impacts on views.
N/A	Horse Heaven Hills Recreation Area	Recreation	0.8 miles	Inferior	Up to 140 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from this recreation area. There would be fewer turbines in view, resulting in a less cluttered appearance. However, since the proposed turbines would be larger in scale (and even larger as compared to the existing modifications in view), the Project would result in high, long term impacts on views.

Note:
[(a)] For more information associated with each KOP location, refer to Table 3.10-2.
KOP = key observation point; I-82 = Interstate 82; N/A = not applicable; NWR = National Wildlife Refuge

Shadow Flicker

The windPRO program predicted that shadow flicker impacts would be greatest at locations nearest to the turbines. The shadow flicker impact areas for Turbine Option 2 are presented in **Figure 4.10-10**. **Table 4.10-12** presents the windPRO-predicted shadow flicker impacts for the receptors with the greatest predicted impacts. The predicted shadow flicker impact for all 742 receptors for both turbine option layouts are presented in the ASC (Horse Heaven Wind Farm, LLC 2021b).

Table 4.10-12: windPRO Maximum Expected Shadow Flicker Impacts for Turbine Option 2

Receptor ID	Participation Status[(a)]	UTM Coordinates (meters)		Expected Shadow Flicker in Hours Per Year (h:mm)
		Easting	Northing	
214	Participant	317662.95	5111107.33	60:38
192	Participant	328441.37	5104524.33	33:42
176	Participant	310274.46	5113505.54	26:52
188	Participant	312194.94	5115957.61	24:38
177	Participant	310436.37	5114156.19	22:36

Source: Horse Heaven Wind Farm, LLC 2021b
[(a)] Participant = participating landowners, with whom the Applicant has lease agreements
h:mm = hours and minutes per year; ID = identification number; UTM = Universal Transverse Mercator

The maximum predicted shadow flicker impact at a single receptor is 60 hours and 38 minutes per year (Receptor ID 214). This highest predicted shadow flicker impact is approximately 1.4 percent of the potential available daylight hours in any given year at the Project location. Two receptors were predicted to experience more than the industry standard threshold of 30 hours of shadow flicker per year (Receptor IDs 192 and 214). Both have been identified as Project participants.

The Project's maximum turbine blade pass frequency would be approximately 0.79 Hz (i.e., less than one alternation per second), similar to Turbine Option 1. No negative health impacts on individuals with photosensitive epilepsy are anticipated.

Similar to Turbine Option 1, visual effects from shadow flicker during operation of Turbine Option 2 would result in medium, long term, probable, confined impacts on receptors that have been identified as Project participants.

Light

Similar to Turbine Option 1, lighting from Turbine Option 2 operations would not result in a safety hazard or other significant adverse impact, though the design would be different. Option 2 consists of higher turbines, which require two red flashing lights to be affixed to the nacelle, positioned on opposite sides (FAA 2020). These lights would be affixed to all of the turbines under Turbine Option 2 (Kobus 2022). In summary, these light impacts would be low, long term, unavoidable, and local.

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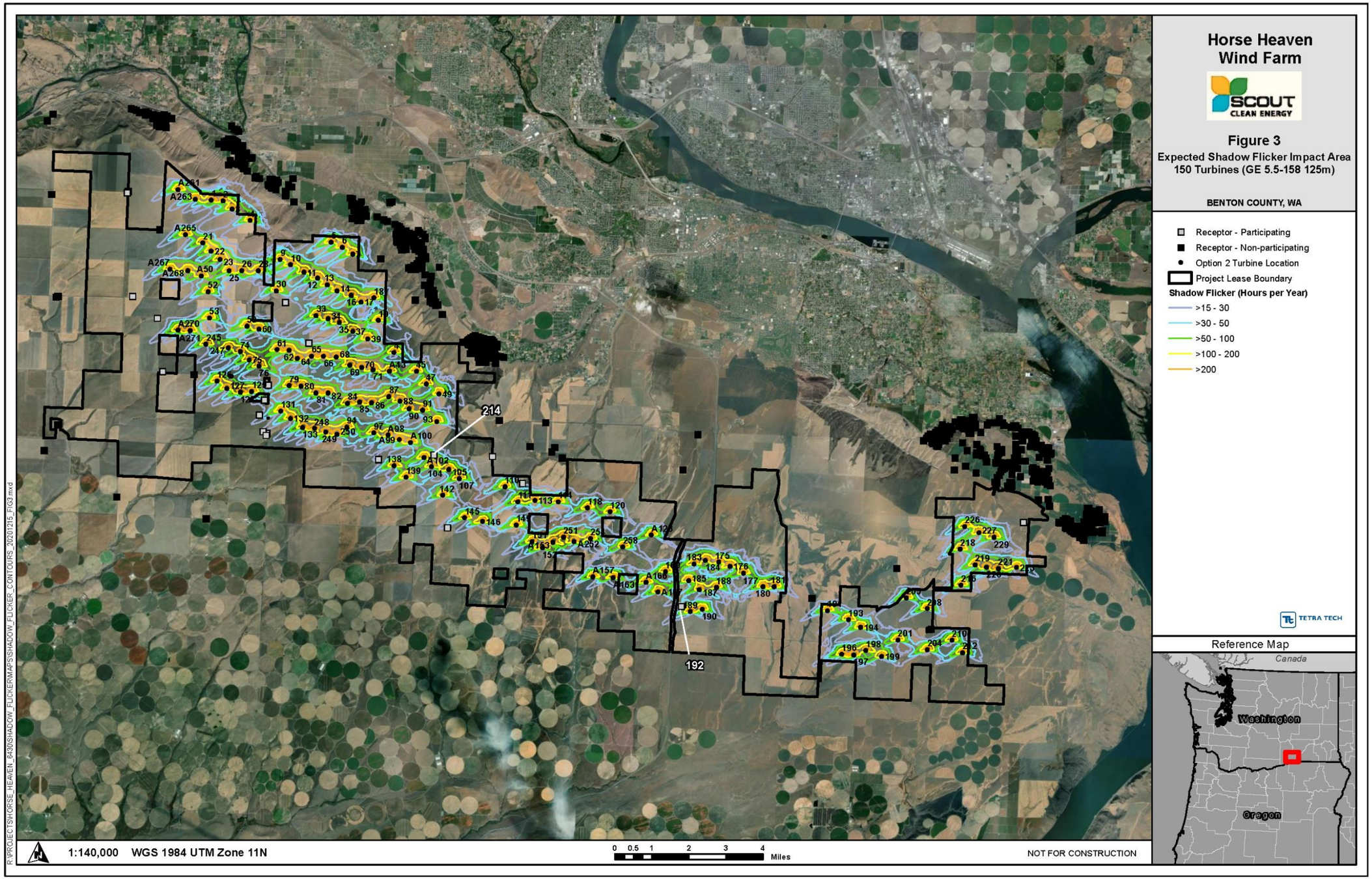

Source: Horse Heaven Wind Farm, LLC 2021b

Figure 4.10-10: Expected Shadow Flicker Impact Area Turbine Option 2 (GE 5.5-158 125m)

Solar Arrays

Visual Aspects

The Project would introduce forms, lines, colors, and textures associated with the solar arrays that are inconsistent with the existing landscape character. The conversion of existing agricultural lands to large expanses of photovoltaic panels would result in visual contrast with their flat, geometric forms and dark, slightly reflective surfaces, which are not common in the setting. The addition of the repetitive, vertical upright features associated with the solar trackers and additional fenced land would be noticeable in this rolling, panoramic landscape.

The Project would be visually prominent in the setting, resulting in medium to high impacts on landscape character. Based on the viewshed analysis presented in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022), the County Well Road and Sellards Road siting areas would be the most visible options (see Figures 5 and 6 in **Appendix 3.10-2** of this EIS). These two Solar Siting Areas would affect a larger portion of the landscape than the other solar array siting option—45 percent for County Well Road and 51 percent for Sellards Road—within the 5-mile-wide area of analysis. The Solar Siting Areas would also be located in an area with a more intact existing landscape than the Bofer Canyon siting area, resulting in more intense impacts on landscape character. The Bofer Canyon option is located near the existing Nine Canyon Wind Project, which has introduced large-scale energy infrastructure into the landscape. The viewshed analysis found that 31 percent of the area within the 5-mile-wide area of analysis would be affected by the solar arrays within the Bofer Canyon siting area (see Figure 7 in **Appendix 3.10-2** of this EIS).

Table 4.10-13 describes the impacts on views from the KOPs and other viewing locations associated with the three Solar Siting Areas. In summary, activities during operation of any of the three solar array options would generally result in medium, long-term, unavoidable, regional impacts on visual resources based on the KOP locations identified for Project analysis. The County Well Road and Bofer Canyon siting areas, would also result in high, long term, unavoidable, local impacts as viewed from limited KOP locations, which would have views of stronger visual contrast introduced by the Project resulting in higher magnitude impacts (see **Table 4.10-13**).

Table 4.10-13: Key Observation Point/Viewpoint Impact Table – Solar Array

KOP # [a]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast[b]	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
1	McNary NWR	Recreation	Not visible	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.
2	S Clodfelter Road – East, Central, and West	Residential	Not visible	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.
3	Chandler Butte	Recreation	2.1 miles	Superior	Moderate	Medium	Negligible	Negligible	Views of the County Well Road option would be unobstructed, with the Project being prominent and beginning to dominate views from this area. The contrast between the darker solar arrays and the tan/green grasses would be evident from this elevated viewing area approximately 2 miles away, resulting in medium, long term impacts on views.
4	I-82 South	Travel route	6.0 miles	Level	Moderate	Negligible	Negligible	Medium	The Bofer Canyon option would be prominent in view and would modify the existing landscape through the introduction of dark, geometric solar arrays in a rolling landscape comprising golden, tan grasses. The impacts on these views would incrementally increase as motorists drive on I-82 between this location and KOP 6 (approximately 10 miles), with some views of the solar arrays being intermittently screened by topography. From this location, the Project would result in medium, long term impacts on views.

Table 4.10-13: Key Observation Point/Viewpoint Impact Table – Solar Array

KOP # [a]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast[b]	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
5	Badger Mountain	Recreation	Not visible	Level	None	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.
6	Bofer Canyon Road/I-82	Travel route	0.6 mile	Level	Strong	Negligible	Negligible	High	The Bofer Canyon option would be visually dominant and demand attention within the setting as the solar arrays would be located on both sides of I-82. An existing transmission line has modified the existing landscape, including the introduction of strong vertical lines. The contrast between the dark solar arrays and the tan grasses would be highly evident. In consideration of the existing modifications in view, the Project would result in medium, long-term impacts on views from this location. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the solar arrays would be highly prominent as viewed both to the east and west resulting in high, long term local impacts.

Table 4.10-13: Key Observation Point/Viewpoint Impact Table – Solar Array

KOP # [a]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast[b]	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
7	Highway 221	Travel route, residential	3.1 miles	Level	Weak	Low	Low	Negligible	The County Well Road and Sellards Road options would attract some attention but would be visually subordinate in the setting. The low form of the solar arrays would blend with the existing landscape from this distance (approximately 3 to 4 miles) and would be partially screened by topography and existing structures. The Project would result in low, long term impacts on views.
8	Kennewick (Canyon Lakes Area) – South and West	Residential	5.9 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.
9	Benton City	Residential, travel route, commercial	3.9 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.
10	Badger Road	Residential, travel route	6.4 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.
11	Highland/ Finley Area	Residential	8.5 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.

Table 4.10-13: Key Observation Point/Viewpoint Impact Table – Solar Array

KOP # [a]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast[b]	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
12	County Well Road[c]	Residential, travel route	0.2 miles	Level	Strong	High	Negligible	Negligible	The County Well Road option would be prominent in the view and would modify the existing landscape through the introduction of dark, geometric solar arrays in a flat to rolling landscape comprising tan-colored agricultural fields. An existing transmission line has already modified the landscape, including the introduction of strong vertical lines and geometric forms. In consideration of the existing modifications in view, the Project would result in medium, long-term impacts on views from this location. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the solar arrays would be highly prominent, resulting in high, long-term, local impacts.

Table 4.10-13: Key Observation Point/Viewpoint Impact Table – Solar Array

KOP # [a]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast[b]	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
13	Travis Road South of Sellards Road	Residential, travel route	1.0 mile	Level	Moderate	Negligible	Medium	Negligible	The Sellards Road option would be prominent in the view and would modify the existing landscape through the introduction of dark, geometric solar arrays in a rolling landscape comprising tan-colored agricultural fields (note: visual simulation in the 2022 ASC does not include these views to the west). The views from this area are generally intact, with views of the Project occurring away from the direction of travel along the road. Views of the Project would therefore be short in duration. In consideration of view duration and partial screening by existing topography, the Project would result in medium, long term impacts on views from this location.
14	South of Benton City	Residential	3.2 miles	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.

Table 4.10-13: Key Observation Point/Viewpoint Impact Table – Solar Array

KOP # [a]	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast[b]	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
15	I-82	Travel route	0.1 mile	Level	Strong	Negligible	Negligible	High	The Bofer Canyon option would be visually dominant and demand attention within the setting, as the solar arrays would be located on both sides of the interstate. (Note: visual simulation in Appendix 3.10-2 does not include these views to the east, south, or west). The interstate highway, distribution power line, and communication tower have modified the existing landscape, including the introduction of vertical and curving lines, but the overall composition of the landscape is visually intact. Views of the solar arrays, with their geometric form, would be highly prominent both to the east and west, resulting in high, long term local impacts as described under KOP 6.
16	U.S. Highway 730 – Wallula Gap	Travel route	Not visible	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.
N/A	Horse Heaven Hills Recreation Area	Recreation	Not visible	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three Solar Siting Areas would not be visually evident.

Notes:
[a] For more information associated with each KOP location, refer to Table 3.10-2.
[b] Level of visual contrast indicated here refers to the Solar Siting Area(s) where a low, medium, or high magnitude of impact was identified in subsequent columns. For alternatives where a "negligible" magnitude of impacts was identified, the solar arrays would not be readily seen from those KOP locations.
[c] Views from dispersed residences within the foreground distance zone (0 to 0.5 miles) were analyzed from KOP 12.
ASC = Application for Site Certification; KOP = key observation point; N/A = not applicable; NWR = National Wildlife Refuge

Light

Once constructed, external lighting supporting the solar arrays would be limited to security lighting. Security lighting would be directed downward and shielded to avoid nighttime sky glow and light trespass effects. This type of exterior lighting would be consistent with other similar sources of light in the area such as the existing Bonneville Power Administration substation and rural residential development, as well as the adjacent Nine Canyon Wind Farm facility.

Light levels during Project operation are anticipated to increase by a minor amount. Typical new Leadership in Energy and Environmental Design (LEED) certified building exterior lighting can account for a vertical and horizontal illuminance value no greater than 0.1 lux (15.1 as a sky glow reading) at the property boundary. A recent study completed for the U.S. Department of Energy found that the luminescence of light-emitting diode (LED) streetlights can increase sky glow 0.2 to 1.6 times the baseline sky glow for nearby receptors (DOE 2017). Assuming a conservative existing conditions classification of E2, the increase in sky glow of this magnitude would not be expected to change the ELZ classification from E2 to E3.

This suggests that Project-related lighting would introduce a minor change to the existing level of sky glow. The ELZs for all light receptors are predicted to remain within their current classifications and would not change as a result of Project operation. As such, lighting from the Project during operations would be a minor contributor to light levels and is not anticipated to change the overall existing light environment during nighttime viewing. In summary, the impacts from lighting would be low, long term, unavoidable, and local.

Glare

The preliminary Project layout for the solar arrays was modeled using GlareGauge to evaluate the potential extent of glare the Project may cause for receptors at several KOPs and segmented traffic routes representing proximal areas surrounding the Project.

To better analyze the potential for glare as a result of sunlight reflectance from the Project and accommodate GlareGauge conservative assumptions noted in the Glare Analysis Report, 60 solar array areas were modeled within the Project layout, which was broken down into three separate areas: Solar Array County Well (West 1), Solar Array Sellards (West 2), and Solar Array Bofer Canyon (East) (Horse Heaven Wind Farm, LLC 2021b). These three areas are presented in **Figures 4.10-11, 4.10-12, and 4.10-13**, respectively. Eight separate glare analyses (i.e., Analysis 1 through Analysis 8) were performed to provide a quantitative assessment of the potential for glare as a result of the Project, based on views from first- and second-story structures, and commuter and commercial vehicles (Horse Heaven Wind Farm, LLC 2021b).

Based on the SGHAT results, all of the modeled receptors (KOPs and vehicular routes) are predicted to not experience glare as a result of the Project. As previously noted, the GlareGauge model does not account for varying ambient conditions (e.g., cloudy days, precipitation), atmospheric attenuation, screening due to existing topography not located within the defined array layouts, or existing vegetation or structures (including fences or walls), nor does the tool allow proposed landscaping to be included; therefore, the predicted results are considered to be conservative.

As noted in Section 3.10, the FAA has developed the following criteria for analysis of solar energy projects located on jurisdictional airports (78 Federal Register 63276):

1) No potential for glint or glare in the existing or planned air traffic control tower cab; and

2) No potential for glare or “low potential for after-image” along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan.

Based on the results of the FAA Notice Criteria Tool, the Project would not exceed notice criteria, so a formal filing is not necessary, and the impacts from glare would be low, long term, unavoidable, and confined.

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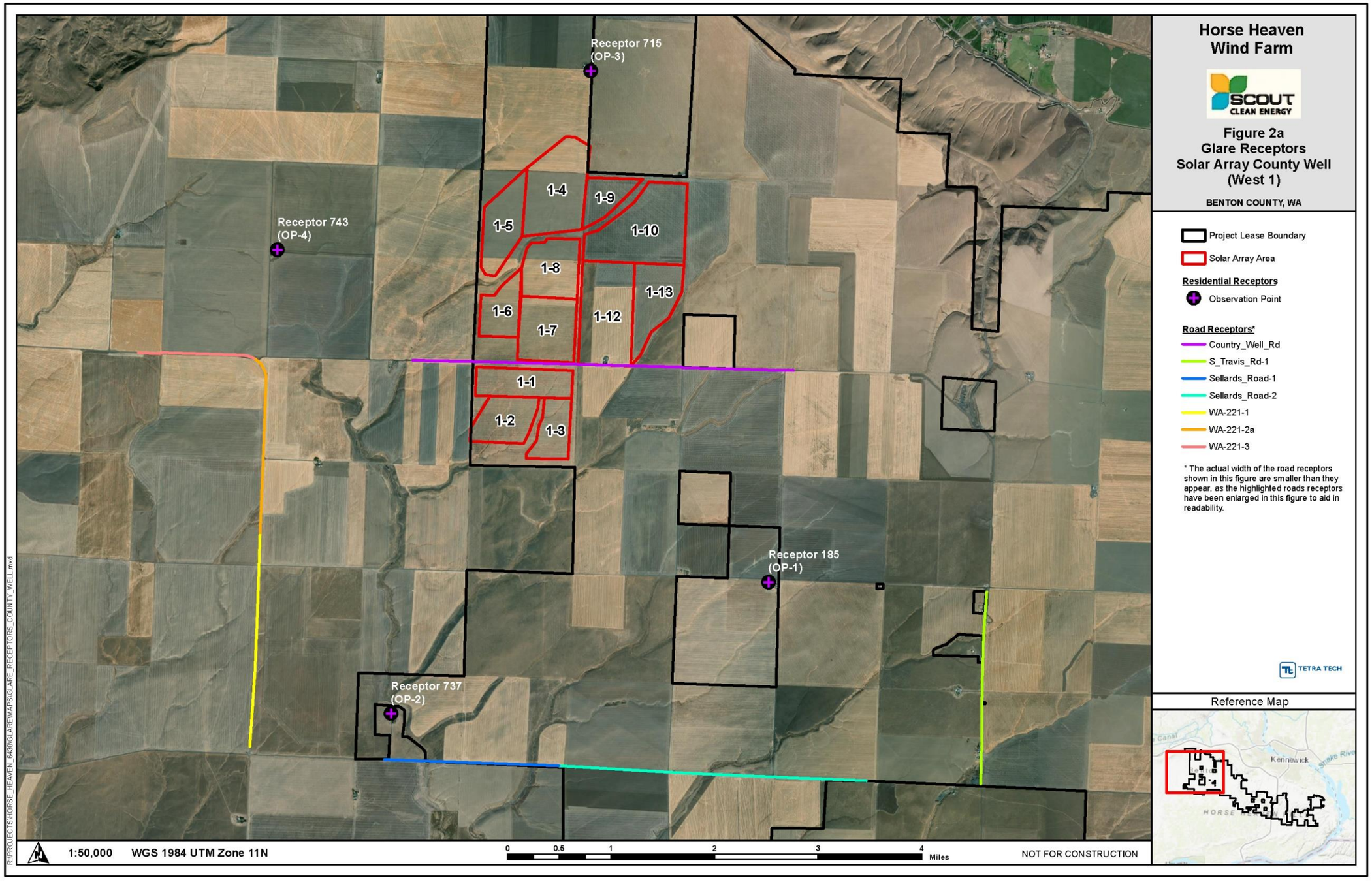
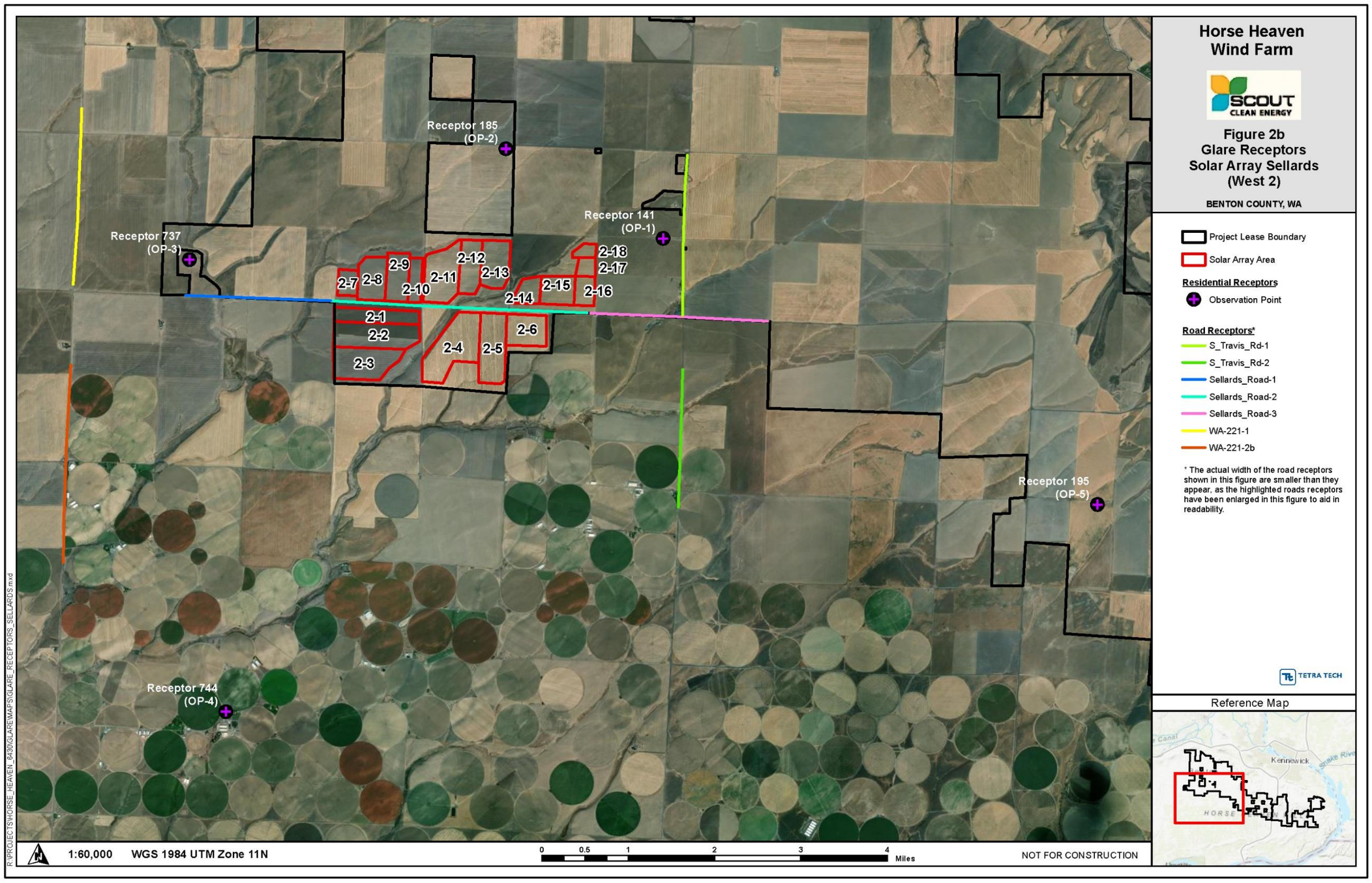


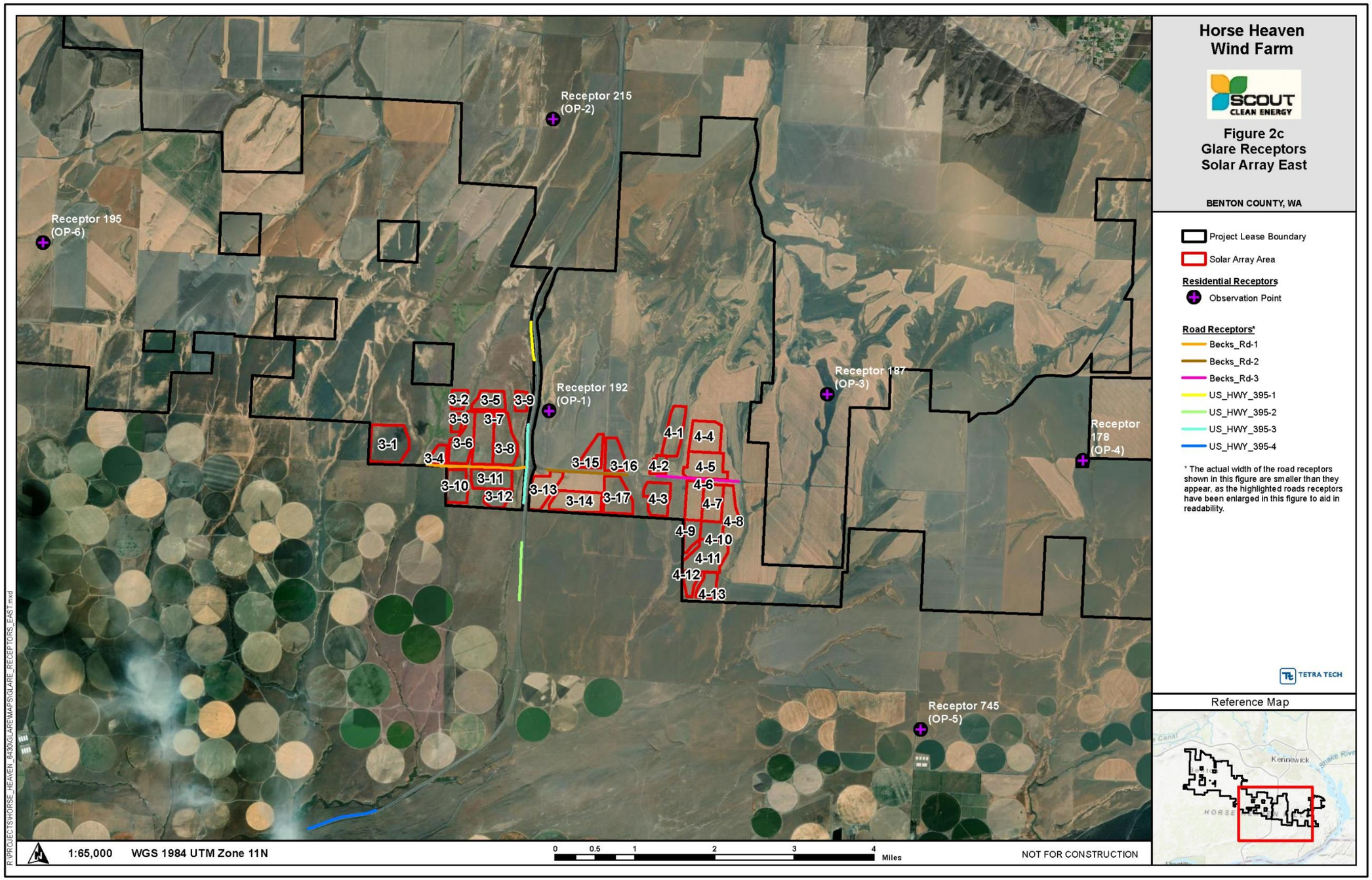
Source: Horse Heaven Wind Farm, LLC 2021b

Figure 4.10-11: Glare Receptors Solar Array County Well (West 1)



Source: Horse Heaven Wind Farm, LLC 2021b

Figure 4.10-12: Glare Receptors Solar Array Sellards (West 2)



Source: Horse Heaven Wind Farm, LLC 2021b

Figure 4.10-13: Glare Receptors Solar Array East

Battery Energy Storage Systems

Visual Aspects

Each BESS would introduce a flat, rectangular, geometric form associated with its proposed yard, similar to the proposed substations, with equipment contained in geometric shipping containers (stacked up to 40 feet tall). These features would contrast with the existing rolling agrarian landscape character as their flat-topped geometric form and close grouping (adjacent to the Project substations) would be inconsistent with adjacent agricultural structures.

In general, the BESS would not attract attention from most locations within the area of analysis. The introduction of the BESS into views from KOPs 6 and 12, which have already been modified by an existing transmission line, would result in long-term, medium impacts on views from 1.2 miles and 0.5 miles away, respectively. The geometric form of the BESS, including the vertically stacked rectangular containers, would attract attention but would be co-dominant with the existing modifications. Views from KOPs 3, 4, and 7 would be minimally modified by the BESS as views would occur from approximately 2.7 to 7.3 miles away, where the Project would mostly blend with the existing landscape setting. The geometric form of the BESS from these three KOPs would appear in scale with the existing landscape from these more distant viewpoints.

The BESS would not be visible from KOPs 1, 2, 5, 8, 9, 10, 11, 13, 14, 15, or 16, or the Horse Heaven Hills Recreation Area; therefore, these Project components would have no impact on these views (see **Appendix 3.10-2**). Overall, activities during operation of the BESS would result in medium, long-term, unavoidable, local impacts on visual resources.

Light

BESS would have security lighting similar to the solar arrays and would have similar impacts—low, long term, unavoidable, and local.

Substations and Transmission Lines

Visual Aspects

The substations would introduce a flat, rectangular, geometric form associated with the substation yard and tall, vertical, geometrical substation equipment. These industrial features would contrast with the existing rolling agrarian landscape character. Where located adjacent to existing transmission lines or substations, the proposed elements would be in scale and consistent with the landscape setting, but in areas where there are limited existing utilities, the substations would alter the landscape setting and would be visually prominent.

In general, the substations would not attract attention from most locations within the area of analysis. The introduction of the substations into views from KOPs 6 and 12, which have been modified by an existing transmission line, would result in long-term, medium impacts on views from 1.2 and 0.5 miles away, respectively. The geometric form of the proposed substation yard and vertical structures would attract attention but would be co-dominant with the existing modifications in the landscape. Views from KOPs 3, 4, and 7 would be minimally modified by the substations as views would occur from approximately 2.7 to 7.3 miles away, where the Project would mostly blend with the existing setting. The geometric form of the substation and vertical protrusions would appear in scale with the existing landscape from these more distant viewpoints.

The substations would not be visible from KOPs 1, 2, 5, 8, 9, 10, 11, 13, 14, 15, or 16 or the Horse Heaven Hills Recreation Area; therefore, this Project component would have no impacts on these views (see **Appendix 3.10-2**).

The transmission lines would modify the existing landscape character through the introduction of repeating vertical transmission line structures, associated linear access roads, and associated vegetation clearing. These effects would be most apparent where there are no adjacent existing transmission lines or other vertical protrusions (e.g., communication towers, substations, etc.) and would result in long-term impacts on landscape character.

Impacts on viewers from the transmission lines would vary from high to low. The highest impacts would occur on the views from four KOP locations (KOPs 6, 12, 13, and 15) located within 2 miles of the transmission lines. Views from KOP 6 have been modified by an existing transmission line; the introduction of the proposed transmission line would result in medium, long-term impacts from approximately 1.2 miles away. The form of the existing transmission line would be repeated by the Project (H-frame structures), reducing potential landscape clutter, and the proposed transmission line would be sited further away from KOP 6 than the existing transmission line. Therefore, the Project would attract attention but would be co-dominant with the existing modifications.

The proposed transmission line would begin to dominate views from KOP 12, where an existing transmission line crosses the road and the Project would parallel the road with a series of transmission line structures stretching to the horizon. Due to the head-on view of the proposed transmission line and its difference in design compared to the existing line, the Project would result in medium, long-term impacts at this location. Views from KOPs 13 and 15 would be highly impacted by the transmission line. From this location, there are limited existing modifications in view, with the existing landscape setting appearing mostly intact. The Project would dominate these unobstructed views through the introduction of tall transmission line structures viewed as skylined above the low, rolling terrain.

The transmission lines would not be visible from KOPs 1,5, 14, 16, or the Horse Heaven Hills Recreation Area; therefore, this Project component would have no impacts on these views. Impacts on views resulting from the introduction of the transmission lines would be low in magnitude from KOPs 2, 3, 4, 7, 8, 9, 10, and 11 due to the viewing distance (more than 2 miles away).

In summary, during operation, the transmission lines would result in areas of high, long term, unavoidable, local impacts, as well as medium, long term, unavoidable, regional impacts on visual resources. During operation, the substations would also result in medium, long term, unavoidable, regional impacts on visual resources.

Light

Substations would have security lighting similar to the solar arrays and would have similar impacts—low, long term, unavoidable, and local. No lighting for security or to satisfy FAA requirements is expected for the transmission lines.

Comprehensive Project

Visual Aspects

In consideration of the CESA methods and the Washington Energy Facility Site Evaluation Council (EFSEC) site certification process, the Project was assessed as it relates to compliance with state and local visual management requirements. The Project analysis presented in this section would comply with WAC 463-60-362(3), which establishes the requirements for a visual resource analysis as part of the site certification process. Specifically, this analysis describes the aesthetic impacts of the proposed Project, shows its location relative to physical features of the site, and outlines procedures to restore or enhance the landscape disturbed during construction (see Section 4.10.2.4 for proposed mitigation measures, and the Applicant's 2022 ASC, including the

Revegetation and Noxious Weed Management Plan [Horse Heaven Wind Farm, LLC 2022; Appendix N] and an Initial Site Restoration Plan to be submitted to EFSEC prior to construction if the Project is approved).

The Benton County Comprehensive Plan identified a planning goal to conserve the visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape, which are uniquely a product of ice age floods. The planning policy further states that the County should "consider the preservation of the ridges and hillside areas through various development regulations" and "pursue a variety of means and mechanisms…to protect the natural landform and vegetative cover of the Rattlesnake uplift formation, notably Rattlesnake, Red, Candy, and Badger mountains and the Horse Heaven Hills" (Benton County 2020). Since these lands have not been placed into Open Space Conservation or other types of conservation, and there are no specific policies to protect the landscapes impacted by the Project, the Project would technically be in compliance with this aspect of the county plan. The Horse Heaven Hills and northern ridgeline would, however, become dominated by energy infrastructure, with potential long duration views from areas within the communities between Benton City and Kennewick. These impacts on views would be most intense where unobstructed views of a large number of turbines occur.

The combined impacts of the different Project components would result in a landscape character dominated by large-scale energy infrastructure, including wind turbines, solar arrays, collector lines, access roads, multiple transmission lines and substations, the O&M facility, and the BESS. The existing setting does include a smaller wind farm and two existing transmission lines, but the scale of the Project and prominence of the turbines would result in high, long-term impacts on the existing landscape.

Views from most residences and other KOP locations would primarily be impacted by the presence of the large, moving wind turbines. The turbines would attract attention and, depending on the extent of their viewshed modified by the turbines, could dominate views as described in **Tables 4.10-9 and 4.10-11**. In addition, some viewers, such as those associated with KOPs 3, 6, 12, 13, and 15, would have views of multiple Project components, introducing additional variety and visual clutter into these views as shown in the visual simulations (2022 ASC [Horse Heaven Wind Farm, LLC 2022]). Views from these locations would be dominated by energy infrastructure, as a result of the additive effects from each Project component, which would result in high, long term impacts. Since these impacts would occur on viewpoints beyond the neighboring receptors, these effects would be regional in extent. In summary, activities during operation of all components of the Project would result in high, long term, unavoidable, regional impacts on visual resources.

Shadow Flicker

The comprehensive impact of shadow flicker relates only to turbines under both turbine options. Shadow flicker during operation under both Turbine Option 1 and Turbine Option 2 would result in medium, long term, probable, confined impacts on visual receptors that have been identified as Project participants.

Light

The combined impacts of the different Project components would result from the addition of FAA lighting across the Lease Boundary and the addition of security lighting near solar arrays, substations, and BESS. The FAA-required lighting is expected to be visible outside of the Project vicinity but would not add light trespass or increase sky glow. The security lighting at the solar arrays, substations, and BESS would be directed downward and shielded to limit off-site impacts and degradation of sky glow, and the resulting impacts are expected to be similar to those of existing light sources used for agricultural or residential security lighting, which are low, long term, unavoidable, and local.

Glare

The Project components combined would result in low-glare impacts on the public and on flights to and from local airports. Glare impacts would result primarily from the solar arrays, and glare modeling analysis indicates that the surrounding observation points and vehicle routes would not experience glare as a result of the Project (Horse Heaven Wind Farm, LLC 2021b). The glare analysis also found that the Project would not create any glare effects that could impact jurisdictional airports. The predicted glare at these receptors is considered to be a conservative representation as the modeling tool does not consider conditions or obstacles between the solar arrays and the receptors, such as vegetative screening (existing or planted), buildings, topography, etc. that would minimize glare.

For the reasons described above, glare from operation of the Project would have low, long term, unavoidable, and confined impacts.

4.10.2.3 Impacts during Decommissioning

The decommissioning and removal of the Project and its components would have impacts similar to those of the construction process. The decommissioning process would result in increased motion associated with construction equipment, short term impacts from dust generation, and landform modification to more closely match preconstruction conditions. Additionally, light and glare associated with construction equipment operations would produce light and glare impacts similar to those of the construction stage. The removal of Project components would likely require additional ground disturbance and vegetation clearing, resulting in reclamation efforts similar to those conducted after the construction process was completed. The restoration of vegetation in these areas would take a number of years to fully establish, but over time the landscape impacted by the Project would begin to more closely resemble preconstruction conditions. A summary of impacts during decommissioning is provided in **Table 4.10-14c**. The following discussion presents a detailed analysis based on component and the comprehensive Project.

Turbine Option 1

Visual Aspects

Impacts during decommissioning under Turbine Option 1 would be similar to those resulting from the construction of the Project, including the movement of vehicles attracting attention. Viewers located within the foreground distance zone (0 to 0.5 miles) or in locations where views would be occupied by large portions of the Project being decommissioned, would experience increased visual contrast in these views. These impacts would be short in duration and would cease after removal of the Project is complete and vegetation has been re-established. Decommissioning activities under Turbine Option 1 would result in medium, short term, probable, local impacts on visual resources.

Light

The Proposed Action would generate minimal light during the decommissioning of Turbine Option 1 from vehicles and equipment. Decommissioning work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, lighting impacts from decommissioning under this option would be negligible, temporary, unlikely, and limited.

Glare

Similar to lighting, the Proposed Action would generate minimal glare during the decommissioning under Turbine Option 1 from vehicle and equipment windshields or glass enclosures. Therefore, glare from decommissioning under this option would have impacts that are low, temporary, feasible, and confined.

Turbine Option 2

Visual Aspects

Decommissioning under Turbine Option 2 would have impacts similar to Turbine Option 1 except that it would have fewer wind turbines, requiring fewer roads and other supporting facilities to be removed. This would result in slightly reduced visual contrast and modifications to the existing landscape introduced during Project decommissioning. Decommissioning activities under Turbine Option 2 would result in medium, short term, probable, local impacts on visual resources.

Light

The Proposed Action would generate minimal light during decommissioning under Turbine Option 2 from vehicles and equipment. Decommissioning work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, lighting impacts from decommissioning under this option would be negligible, temporary, unlikely, and limited.

Glare

Similar to lighting, the Proposed Action would generate minimal glare during decommissioning under Turbine Option 2 from vehicle and equipment windshields or glass enclosures. Therefore, glare from decommissioning is expected to have impacts that are low, temporary, feasible, and confined.

Solar Arrays

Visual Aspects

Visual impacts resulting from decommissioning of the solar arrays would be similar to construction, which would be focused within the selected Solar Siting Areas. Within the fenced boundaries, all lands would be restored to more closely match preconstruction conditions, including revegetation of the site. Decommissioning activities for the solar arrays would result in low, short term, probable, local impacts on visual resources.

Light

The Proposed Action would generate minimal light during decommissioning of the solar arrays from vehicles and equipment. Decommissioning work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, lighting impacts from decommissioning of this Project component are expected to be negligible, temporary, unlikely, and limited.

Glare

Similar to lighting, the Proposed Action would generate minimal glare during decommissioning of the solar arrays from vehicle and equipment windshields or glass enclosures. Some glare would occur for a short time after operation ends and before the panels are removed. Therefore, glare from decommissioning of this Project component is expected to have impacts that are low, temporary, feasible, and confined.

Battery Energy Storage Systems

Visual Aspects

Impacts would be similar to the construction of the Project with the removal of the BESS containers and reclamation of those sites. This would include additional motion from construction equipment and associated dust during those activities. As described for other components, vegetation restoration would occur in these disturbed areas, and the landscape would begin to more closely resemble preconstruction conditions. Decommissioning activities for the BESS would result in low, short term, probable, local impacts on visual resources.

Light

The Proposed Action would generate minimal light during the decommissioning of the BESS from vehicles and equipment. Decommissioning work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, lighting impacts from decommissioning this Project component are expected to be negligible, temporary, unlikely, and limited.

Glare

Similar to lighting, the Proposed Action would generate minimal glare during decommissioning of the BESS from vehicle and equipment windshields or glass enclosures. Therefore, glare from decommissioning is expected to have impacts that are low, temporary, feasible, and confined.

Substations and Transmission Lines

Visual Aspects

Impacts of decommissioning both the substations and transmission lines are expected to be similar to those of constructing these Project components. The removal of the tall, vertical structures associated with both components would result in additional motion from construction equipment, structure dismantling, and conductor removal. As described for other components, vegetation restoration would occur in these disturbed areas, and the landscape would begin to more closely resemble preconstruction conditions. Decommissioning activities for the substations and transmission lines would result in low, short term, probable, local impacts on visual resources.

Light

The Proposed Action would generate minimal light during decommissioning of the substations and transmission lines from vehicles and equipment. Decommissioning work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, lighting impacts from decommissioning this Project component are expected to be negligible, temporary, unlikely, and limited.

Glare

Similar to lighting, the Proposed Action would generate minimal glare during decommissioning of the substations and transmission lines from vehicle and equipment windshields or glass enclosures. Therefore, glare from decommissioning is expected to have impacts that are low, temporary, feasible, and confined.

Comprehensive Project

Visual Aspects

During Project decommissioning, there would be short term impacts from these activities, which would occupy a large portion of the landscape and include removal of wind turbines, solar arrays, the O&M facility, transmission lines, BESS, and substations, as well as the reclamation of access roads, turbine pads, and other areas disturbed during construction and operation of the Project. These activities would include views of additional vehicular

traffic, as well as areas of exposed soil after the removal of vegetation and during earthwork activities, prior to site reclamation efforts. The removal of vegetation would be noticeable in the setting and would contrast with the existing character; however, over time, as vegetation is re-established in the area, it would begin to repeat vegetation patterns common in the area.

Viewpoints and KOPs located within the foreground distance zone (0 to 0.5 miles) would be most impacted by decommissioning, particularly where a large portion of their viewshed would be occupied by decommissioning multiple Project components simultaneously. Overall, activities during decommissioning of all components of the Project would result in medium, short term, probable, regional impacts on visual resources.

Light

The Proposed Action would generate minimal light during the decommissioning process from vehicles and equipment. Decommissioning work would be concentrated during daylight hours, minimizing the potential need for temporary nighttime lighting. Therefore, lighting impacts from decommissioning the Project components combined are expected to be negligible, temporary, unlikely, and limited.

Glare

Similar to lighting, the Proposed Action would generate minimal glare during the decommissioning process from vehicle and equipment windshields or glass enclosures. Sunlight on solar panels during removal would cause glare for a short time after operation ends and before panels are removed. Therefore, glare from decommissioning is expected to have impacts that are low, temporary, feasible, and confined.

4.10.2.4 Recommended Mitigation Measures

This section describes measures that would reduce or compensate for impacts related to visual aspects, light, and glare from construction, operation, and decommissioning of the Project. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action.

Visual Aspects Mitigation

EFSEC has identified the following additional and modified mitigation measures for the Project to avoid and/or minimize potential impacts on visual resources, adapted from BLM (2013) and CESA (2011):

- Wind turbines:
  - **VIS-1:**[50] Relocate turbines located within the foreground distance zone (0 to 0.5 miles) of non-participating residences to avoid completely dominating views from these highly sensitive viewing locations. Siting the turbines further away would reduce the level of visual contrast and prominence (CESA 2011; BLM 2013).
  - **VIS-2:** Do not place piggyback advertising, cell antennas, commercial messages, or symbols on proposed wind turbines, as these have the potential to introduce additional visual contrast and would seem out of place in this natural-appearing agricultural landscape (BLM 2013).

[50] Vis-: Identifier of numbered mitigation item for Visual Aspects

- **VIS-3:** Maintain clean nacelles and towers to avoid any spilled or leaking fluids accumulating dirt, which would contrast with the clean, white/gray wind turbines and result in increased visual contrast within the landscape (BLM 2013).

- Solar arrays:
  - **VIS-4:** Avoid complete removal of vegetation beneath solar arrays during construction, where possible, to reduce contrast between the exposed soil and adjacent undisturbed areas during Project operation. If site grading requires the removal of vegetation, the area will be revegetated and maintained during Project operation (BLM 2013).
  - **VIS-5:** Install opaque fencing to directly screen views of the solar arrays where sited within 0.5 miles of KOPs (including the alignment of I-82 and other linear KOPs) or residences. To allow the proposed fencing to blend into the setting, color-treat the fencing to minimize color contrast with the existing landscape (BLM 2013).
- Battery Energy Storage System:
  - **VIS-6:** Design BESS to blend with the adjacent agricultural character, including selecting materials and paint colors to reduce contrast with the existing setting. By mimicking design characteristics of agricultural structures in the area, the BESS facilities would appear consistent with the area's agricultural setting, including the overall visual scale of those existing structures (BLM 2013).
- Substation and transmission lines:
  - **VIS-7:** Maximize the span length across highways and other linear viewing locations to decrease visual contrast at the highway crossings. By moving the structures as far from the road as possible, the effect of those structures being located directly adjacent to these linear viewing locations would be reduced (BLM 2013).
  - **VIS-8:** Choose the type of proposed transmission structure (H-frame or monopole) to best match the adjacent transmission lines and to minimize visual clutter from the introduction of different structure types into the landscape, which would result in increased visual contrast (BLM 2013).

Application of the above mitigation measures would incrementally reduce visual contrast, but based on the scale of the Project, including the height of the proposed wind turbines, these measures would not effectively reduce identified levels of contrast or degrees of impact magnitude.

Shadow Flicker Mitigation

EFSEC has identified the following additional mitigation measure for the Project to avoid and/or minimize potential impacts from shadow flicker:

SF-1:[51] The Applicant would attempt to avoid, minimize, and mitigate shadow flicker at non-participating residences. Shadow flicker can usually be addressed by planting trees, shading windows, operational programming, or other mitigation measures. As a last resort, the control system of the wind turbine could

[51] SF-: Identifier of numbered mitigation item for Shadow Flicker

be programmed to stop the blades during the brief periods when conditions result in a perceptible shadow flicker.

SF-2: The Applicant would set up a complaint resolution procedure that would include the following: 1) A 24-hour "hot line" or other form of communication that the public can use to report any undesirable shadow flicker associated with the operation of the wind turbines, with the ability to log the date and time of a complaint. This line of communication would be maintained for at least one year, at which time it could be reassessed to continue or be terminated; 2) An attempt to contact the complainant within 24 hours; and 3) A requirement to report any complaints and their resolution to EFSEC during monthly reports to the Council.

Light Mitigation

EFSEC has identified the following additional mitigation measure for the Project to avoid and/or minimize potential impacts from light:

LIG-1:[52] The Project would be constructed with LEED-certified building exterior(s) and security lighting to minimize vertical and horizontal illuminance to keep the lighting on site and to reduce impacts at the Lease Boundary and beyond.

Glare Mitigation

There are no recommended mitigation measures proposed for glare.

4.10.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023b). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

[52] LIG-: Identifier of numbered mitigation item for Light

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[53]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to minimal changes to layout of the turbines and other Project infrastructure. This includes impacts associated with both turbine options, which, through reduction in the number of turbines, would result in fewer turbines being visible from some KOP locations. Based on the prominence and extent of proposed turbines in view, no changes in impact levels are anticipated and Significant Unavoidable Adverse Impacts on visual aspects would remain.

Through removal of the proposed transmission line located within the foreground distance zone (0 to 0.5 miles) as viewed from KOP 13, impacts on these views would be reduced to a medium level with the transmission line now being proposed approximately 2 miles away.

High impacts associated with views from I-82 (KOPs 6 and 15) of the Bofer Canyon Solar Siting Area (East Solar Array) would be reduced to a medium level based on the reduction in the size of proposed solar arrays, only occurring on the east side of I-82, which would result in the arrays being intermittently screened from view along the interstate including from both KOPs 6 and 15. Based on the post-adjudication Applicant commitments

[53] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

provided in the Final ASC, high impacts on views from I-82 would be reduced to a medium level, therefore the Bofer Canyon Solar Siting Areas would not result in Significant Unavoidable Adverse Impacts on visual resources.

The additional Applicant commitments identified above do not change the impact ratings associated with other project components previously provided for visual aspects, light and glare, and shadow flicker in the Draft EIS, and the remaining impact ratings would be the same.

4.10.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This EIS weighs the impacts on visual resources that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.10-14a, 4.10-14b, and 4.10-14c**..

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Table 4.10-14a: Summary of Potential Impacts on Visual Aspects, Light, and Glare during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Visual Aspect	Turbine Option 1 Turbine Option 2	Activities would attract attention and would modify the localized existing landscape setting.	Medium	Short Term	Probable	Local	No mitigation identified	None identified
Visual Aspect	Solar Arrays BESS Substations Transmission Lines	Activities would be seen and would attract attention in partially intact settings but would mostly be subordinate to existing landscape features.	Low	Short Term	Probable	Local	No mitigation identified	None identified
Visual Aspect	**Comprehensive Project**	Activities would attract attention and would modify the existing landscape setting. Due to the additive effect of the different Project features, these impacts would affect a larger area.	Medium	Short Term	Probable	Regional	No mitigation identified	None identified
Light	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations Transmission Lines **Comprehensive Project**	Activities would be completed mainly during daytime hours without the need for nighttime lighting.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified
Glare	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations Transmission Lines **Comprehensive Project**	Activities could generate glare from construction equipment or solar panels.	Low	Temporary	Feasible	Confined	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Site Evaluation Council

Table 4.10-14b: Summary of Potential Impacts on Visual Aspects, Shadow Flicker, Light, and Glare during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Visual Aspect	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	The wind turbines, and comprehensive Project, would dominate views from many KOP locations, and the landscape would appear strongly altered.	High	Long Term	Unavoidable	Regional	**VIS-1:** Relocate turbines located within the foreground distance. **VIS-2:** No advertising, cell antennas, commercial messages, or symbols placed on wind turbines. **VIS-3:** Maintain clean nacelles and towers.	Significant for Visual Aspects.
Visual Aspect	Solar Arrays (all options) Substations Transmission Lines	The solar arrays (all options), substations, and transmission lines would attract attention and would modify the existing landscape setting.	Medium	Long Term	Unavoidable	Regional	**VIS-4:** Avoid complete removal of vegetation beneath solar arrays. **VIS-5:** Install color-treated, opaque fencing to screen views of the solar arrays. **VIS-8**: Choose the type of transmission structure to best match the adjacent transmission lines.	None identified
Visual Aspect	County Well Solar Array	The County Well solar array siting area would dominate views from KOP 12 and the local landscape would appear strongly altered where there are limited existing landscape modifications.	High[e]	Long Term	Unavoidable	Local	**VIS-4:** Avoid complete removal of vegetation beneath solar arrays. **VIS-5:** Install color-treated, opaque fencing to screen views of the solar arrays.	None identified
Visual Aspect	Transmission Lines	The transmission lines would dominate views from KOP 15 and the landscape would appear strongly altered in this localized area where there are limited existing landscape modifications.	High	Long Term	Unavoidable	Local	**VIS-7**: Maximize the span length across highways and other linear viewing locations. **VIS-8**: Choose the type of transmission structure to best match the adjacent transmission lines.	None identified
Visual Aspect	BESS	The BESS would attract attention from some KOP locations and would modify the localized existing landscape setting.	Medium	Long Term	Unavoidable	Local	**VIS-6:** Design BESS to blend with the adjacent agricultural character.	None identified
Shadow Flicker	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Wind turbines would create shadow flicker that would impact Project participants.	Medium	Long Term	Probable	Confined	**SF-1:** The Applicant would attempt to avoid, minimize. and mitigate shadow flicker at nearby residences. **SF-2:** The Applicant would set up a complaint resolution procedure.	None identified

Table 4.10-14b: Summary of Potential Impacts on Visual Aspects, Shadow Flicker, Light, and Glare during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Light	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations Transmission Lines **Comprehensive Project**	Lighting for security purposes and to conform with FAA requirements would be visible outside the Lease Boundary but would have limited effect in terms of light trespass and sky glow degradation.	Low	Long Term	Unavoidable	Local	**LIG-1:** Use LEED-certified building exterior(s) and security lighting.	None identified
Glare	Solar Arrays **Comprehensive Project**	Solar panels at all modeled receptors and vehicular routes are predicted to not experience glare as a result of Project operations; glare would not exceed FAA notice criteria, and a formal filing is not necessary.	Low	Long Term	Unavoidable	Confined	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
[e] The analysis of the post-adjudication Applicant commitments provided in the Final ASC (Horse Heaven Wind Farm, LLC 2023b) has resulted in a change to the impact rating associated with Bofer Canyon Solar Siting Area (East Solar Array). Specifically, high impacts identified from KOPs 6 and 15 have been reduced to a medium level as described in Section 4.10.2.5 Post-Adjudication Applicant Commitments.
BESS = battery energy storage system; EFSEC = Washington Energy Site Evaluation Council; FAA = Federal Aviation Administration; KOP = key observation point; LEED = Leadership in Energy and Environmental Design

Table 4.10-14c: Summary of Potential Impacts on Visual Aspects, Light, and Glare during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Visual Aspect	Turbine Option 1 Turbine Option 2	Activities would attract attention and would modify the localized existing landscape setting.	Medium	Short Term	Probable	Local	No mitigation identified	None identified
Visual Aspect	Solar Arrays BESS Substations Transmission Lines	Activities would be seen and would attract attention in partially intact settings but would mostly be subordinate to existing landscape features.	Low	Short Term	Probable	Local	No mitigation identified	None identified
Visual Aspect	**Comprehensive Project**	Activities would attract attention and would modify the existing landscape setting. Due to the additive effect of the different Project features, these impacts would affect a larger area.	Medium	Short Term	Probable	Regional	No mitigation identified	None identified
Light	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations Transmission Lines **Comprehensive Project**	Activities would be completed mainly during daytime hours without the need for nighttime lighting.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified
Glare	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations Transmission Lines **Comprehensive Project**	Activities could generate glare from construction equipment or solar panels.	Low	Temporary	Feasible	Confined	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Site Evaluation Council

4.10.3 Impacts of No Action Alternative

Visual Aspects Impacts

Under the No Action Alternative, impacts related to visual resources from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

Shadow Flicker

Under the No Action Alternative, none of the sources of shadow flicker described above for operation of the Proposed Action would occur, and no alternative use would cause shadow flicker other than the operation of wind turbines.

Light

Under the No Action Alternative, none of the lighting sources described above for construction, operation, and decommissioning of the Proposed Action would occur. Current agricultural land uses could have direct impacts from heavy farm equipment operations similar to construction and decommissioning of the Proposed Action in magnitude, duration, spatial extent, and likelihood.

Glare

Under the No Action Alternative, none of the glare sources described above for construction, operation, and decommissioning of the Proposed Action would occur. Current agricultural land uses could have direct impacts from heavy farm equipment operations similar to construction and decommissioning of the Proposed Action in magnitude, duration, spatial extent, and likelihood.

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4.11 Noise and Vibration

This section evaluates the impacts of the proposed Horse Heaven Wind Farm (Project, or Proposed Action) on the levels of noise and vibration within the Project vicinity. Section 3.11 presents the affected environment for noise and vibration. The study area for this assessment includes the noise sensitive receptor (NSR) locations on adjacent properties and areas of dense population near the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. These receptors most sensitive to noise typically include residences, hospitals, schools, parks, and churches.

Under the Washington State Environmental Policy Act, this Draft Environmental Impact Statement weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors when determining the significance of identified potential impacts (WAC 197-11-330 and WAC 197-11-794). These impacts were qualitatively assessed based on the method of analysis described in Section 4.1. The impact rating system is summarized in **Table 4.11-1**.

Table 4.11-1: Impact Rating Table for Noise and Vibration from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

As identified in **Table 4.11-2**, the determination of impact magnitude is based on impacts relating to noise and vibration. The identified ratings have been included to further define magnitude in each case.

Table 4.11-2: Criteria for Assessing Magnitude of Impacts on Noise and Vibration

Magnitude of Impacts	Description
Negligible	**Noise:** Not audible, and no increase in ambient noise levels. The noise environment would appear unaltered by Project components and would not attract attention; **Vibration:** No noticeable vibrations resulting from Project components would be measured, observed, or perceived at neighboring receptors; and **State noise limits:** Project impacts would be below state limits at all NSR locations**.**
Low	**Noise:** Potentially audible, with an increase in noise level between 0 and 5 dBA. An increase of 3 dBA in noise level is at the threshold of human perception of noise increase and an increase of 5 dBA is an observable increase in noise level. These levels would cause no interference to outdoor or indoor environments; **Vibration:** Vibrations resulting from Project components could be measured or observed at neighboring receptors; and **State noise limits:** Project impacts would be below state limits at all NSR locations.
Medium	**Noise:** Audible, with an increase in noise level between 5 and 10 dBA. An observable increase in noise levels above the threshold of human perception. Noise level may interfere with outdoor or indoor environments; **Vibration:** Vibrations from Project components could be measured or observed at neighboring receptor's dwellings or structures; and/or **State noise limits:** Project impacts would be at or below state limits at all NSR locations.
High	**Noise:** Audible, with an increase in noise level greater than 10 dBA. An increase of 10 dBA would be considered a doubling of the perceived noise level. Noise level would likely cause interference with outdoor and indoor environments; **Vibration:** Vibrations from Project components could be measured or observed at neighboring receptors at levels causing annoyance and/or the potential to cause structural damage to buildings or other structures; and/or **State noise limits:** Project impacts would exceed state limits at NSR locations.

dBA = A-weighted decibels; NSR = noise sensitive receptor

Background

Potential impacts from the Proposed Action are assessed for noise and vibration during the construction, operation, and decommissioning stages of the following Project components:

- Turbine Option 1 and Turbine Option 2
- Solar Arrays
- Substations
- Battery Energy Storage Systems (BESS)
- Comprehensive Project

The evaluation presented herein relies on the noise modeling and calculations of construction and operation presented in the 2022 Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2022). For the assessment of noise impacts from Project development, this analysis includes a review of the following:

- Construction calculations presented in the 2022 ASC

- Construction noise calculations and operation noise modeling prepared by Horse Heaven Wind Farm, LLC (Applicant) (Appendix O, Horse Heaven Wind Farm, LLC 2022)
- Supplemental emission calculations of noise impacts presented in this section

4.11.1 Method of Analysis

Anticipated noise impacts during construction and operation of the Project were quantified using sound attenuation over distance using hemispherical spreading for construction and an environmental sound propagation program (model) for operation. Hemispherical spreading describes the decrease in level when a sound wave propagates away from a source uniformly in all directions above ground. Noise impacts during construction were assumed to be representative of potential noise impacts during decommissioning. Vibration impacts were qualified using standard screening distances from construction equipment operation for both the construction and the decommissioning stages.

Construction Methodology

Construction of the Project is expected to be typical of other similar projects in terms of the schedule, equipment used, and construction activities such as land clearing, concrete work, and building. Construction activities would occur primarily during daytime hours within a typical construction work week (Monday through Saturday). Equipment would include cranes, land-clearing equipment, and earth-moving equipment. The noise level would vary during the construction period, depending on the construction stage. For this analysis, it was conservatively assumed that all potential construction equipment would be operating continuously at the closest location to an NSR. To calculate the changes in noise level in this scenario, the noise levels from all construction equipment were totaled and then the inverse square law was utilized. The inverse square law is a property in physics whereby an energy such as sound pressure (noise) varies with the distance from the source inversely as the square of the distance. Using this law, the noise level decreases by 6 A-weighted decibels (dBA) for each doubling of distance from the sound point source.

Ground-borne vibration generated by construction equipment typically diminishes rapidly with distance from the vibration source. Federal Transit Administration (FTA) screening distances from construction activities of 100 feet for highly vibration-sensitive buildings (e.g., hospitals with vibration-sensitive equipment) and 50 feet for residential uses and historic buildings were used to determine vibration impacts (FTA 2018).

Operation Methodology

Operation of the Project is expected to be typical of other similar projects. Noise models of the proposed turbine options were developed by Tetra Tech for the 2022 ASC and revised in a technical memorandum; the most impactful scenarios are addressed in this section (Appendix O, Horse Heaven Wind Farm, LLC 2022).

Noise impacts resulting from the Project were evaluated using the most recent version of CadnaA (Computer Aided Noise Abatement; DataKustik GmbH 2020), an environmental noise propagation computer program that was developed to assist with noise propagation calculations for major noise sources and projects. For this analysis, the major noise outdoor sources modeled are associated with Turbine Option 1 and Turbine Option 2. The major noise sources were wind turbines, solar arrays, substations, and BESS. The sources were modeled using an expected operational usage factor of 100 percent. Usage factor accounts for the fraction of time that the equipment is in use over the specified time period. This is a conservative assumption as there are different operational cycles whereby some equipment will be operating while other equipment will be shut down and represents the maximum noise level that can be generated by the operational scenarios. **Appendix 4.11-1**

describes the model inputs and lists the configuration of the calculation parameters used to complete noise modeling for the Project.

Wind Turbines

Sound generated by an operating turbine comprises both aerodynamic and mechanical sound, with the dominant sound component from modern utility-scale turbines being largely aerodynamic. Aerodynamic sound refers to the sound produced from air flow and the interaction with the turbine tower structure and moving rotor blades. Mechanical sound is generated by the gearbox, generator, and cooling fan and is radiated from the surfaces of the nacelle and machinery enclosure and by openings in the nacelle casing. Recent improvements in the design of turbine mechanical components and the use of improved noise-dampening materials have minimized mechanical noise emissions. Sound reduction elements in turbine design include impact noise insulation of the gearbox and generator, sound-reduced gearbox, sound-reduced nacelle, and rotor blades designed to minimize noise generation.

Wind energy facilities, in comparison to other energy-related facilities, are unique in that the sound generated by each individual turbine will increase as the wind speed across the site increases. Turbine sound is negligible when the rotor is at rest, increases as the rotor tip speed increases, and is generally constant once rated power output and maximum rotational speed are achieved. Under this condition, the maximum sound power level for turbines under the Project's Turbine Option 1 and Turbine Option 2 would be reached at approximately 15.7 to 22.4 miles per hour (7 to 10 meters per second), according to the manufacturer specifications (Horse Heaven Wind Farm, LLC 2022). It is important to recognize that, as wind speeds increase, the background ambient sound level will generally increase as well, resulting in acoustic masking effects; however, this trend is also affected by local contributing sound sources. Therefore, during periods of elevated wind speed when higher turbine sound emissions occur, the sound produced from a turbine operating at maximum rotational speed may be somewhat masked due to wind-generated sound. In practical terms, this means that as turbine noise increases with increased rotational speed, so does the baseline noise environment in the area of the turbine. The ambient noise survey conducted for the Project confirms that, in general, the baseline noise levels in the study area increase as wind speeds increase (see Section 3.11, Table 3.11-4 of this EIS; March 2022 Baseline Sound Survey Report; Appendix O, Horse Heaven Wind Farm, LLC 2022). Conversely, these acoustic masking effects may be limited during periods of unusually high wind shear (i.e., change in wind direction or speed) or at receiver locations that are sheltered from the prevailing wind direction.

The maximum number of turbines and maximum turbine height carried forward for analysis as components of the Project under Turbine Option 1 and Turbine Option 2 are summarized in **Table 4.11-3**. For the purposes of this study, the loudest turbine model was used for each of the turbine options.

Table 4.11-3: Proposed Action Wind Turbine Layout and Model Options

Turbine Parameters/Features	Turbine Option 1	Turbine Option 2
Wind Turbine Output	GE 2.82-MW	GE 5.5-MW
Wind Turbine Layout	244 turbines up to a maximum blade tip height of 499 feet[a]	150 turbines up to a maximum blade tip height of 671 feet[a]
Tower Type	Tubular	Tubular
Turbine Rotor Diameter	417 feet	518 feet
Turbine Hub Height (ground to nacelle)	292 feet	411 feet
Tower Base Diameter	15.1 feet	15.1 feet
Maximum Rated Sound Power Level (dBA)[b]	110.0	107.5
Confidence Interval (k-factor)[c]	2 dBA	2 dBA

Source: Horse Heaven Wind Farm, LLC 2022
Notes:
[a] As proposed in the 2022 ASC, Table 2.3-1
[b] As presented in the 2022 ASC, Table 4.1.1-7
[c] As presented in the 2022 ASC, Section 4.1.1.2
ASC = Application for Site Certification; dBA = A-weighted decibels; GE = General Electric; MW = megawatts

Turbine Option 1 is shown in **Figure 4.11-1**, and Turbine Option 2 is shown in **Figure 4.11-2**. The final number of turbines and the specific model used would depend on availability and other considerations at the time of construction. However, the number of turbines would not exceed 244, and the maximum turbine height (ground to blade tip) would not exceed 671 feet. The 2022 ASC noise assessment was based on two potential layout options with two potential turbine models per layout option.

The acoustic modeling analysis and compliance assessment presented in the 2022 ASC assumed that all turbines were operating simultaneously and continuously at maximum rated power, when in reality it is more likely that turbines would often be operating at lower wind speeds, thus producing lower sound emissions. Therefore, while ambient sound levels might be lower at lower wind speeds, so would the turbine sound emissions. **Table 4.11-4** shows the sound power level by wind speed for each turbine under consideration (Horse Heaven Wind Farm, LLC 2022).

Table 4.11-4: Wind Turbine Sound Power Levels (dBA) Correlated with Wind Speed

Turbine	Wind Turbine Maximum Sound Power Level at Reference Wind Speed (meters per second / miles per hour)									
	3/6.7	4/8.9	5/11.2	6/13.4	7/15.7	8/17.9	9/20.1	10/22.4	11/24.6	12/26.8
Option 1 Layout-GE 2.82	-	96.7	96.9	100.4	103.9	106.8	109.2	110.0	110.0	110.0
Option 2 Layout-GE 5.5	-	93.8	94.5	97.6	101.0	104.0	106.4	107.5	107.5	107.5

Source: Horse Heaven Wind Farm, LLC 2021a
dBA = A-weighted decibels

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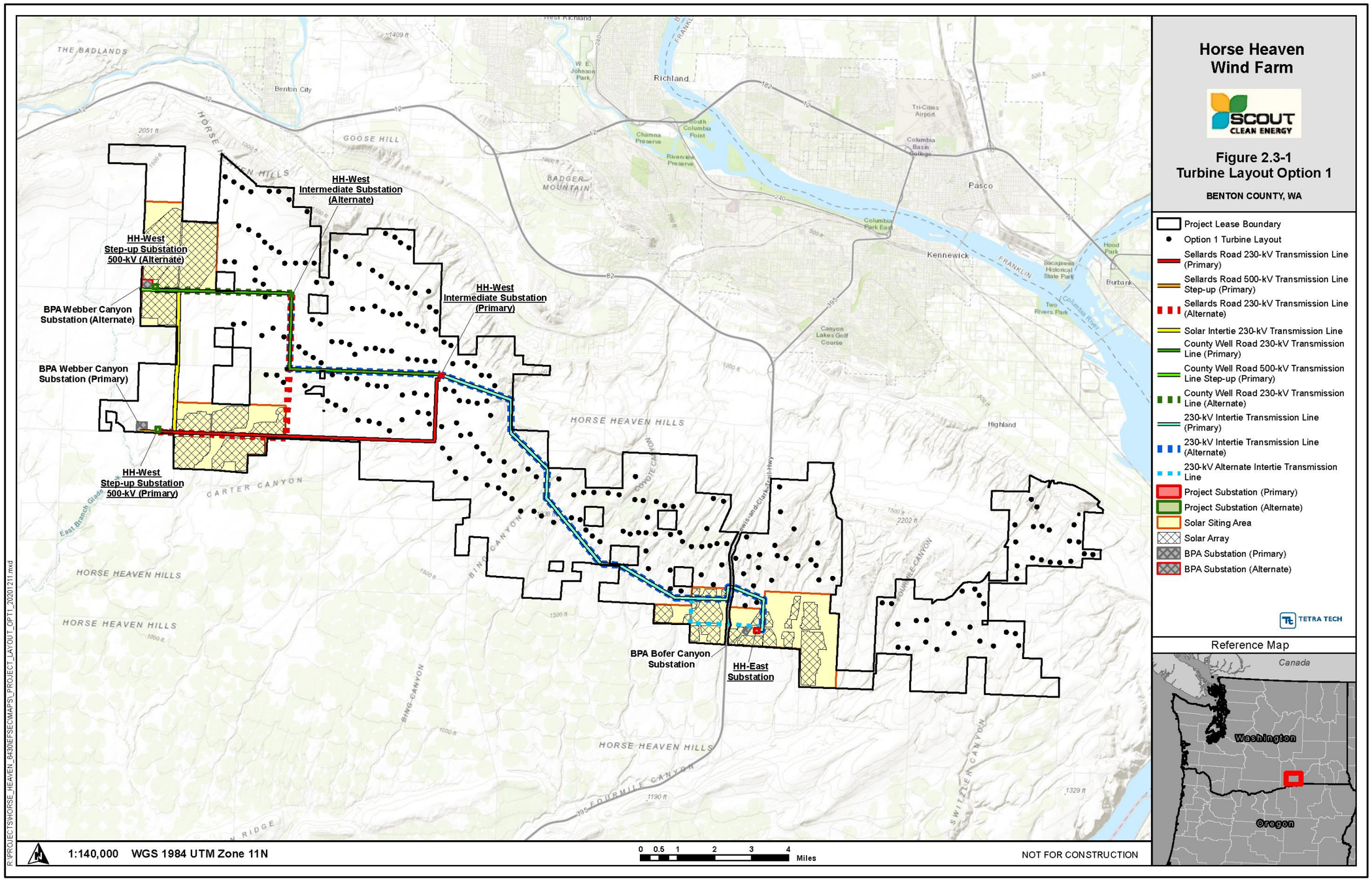
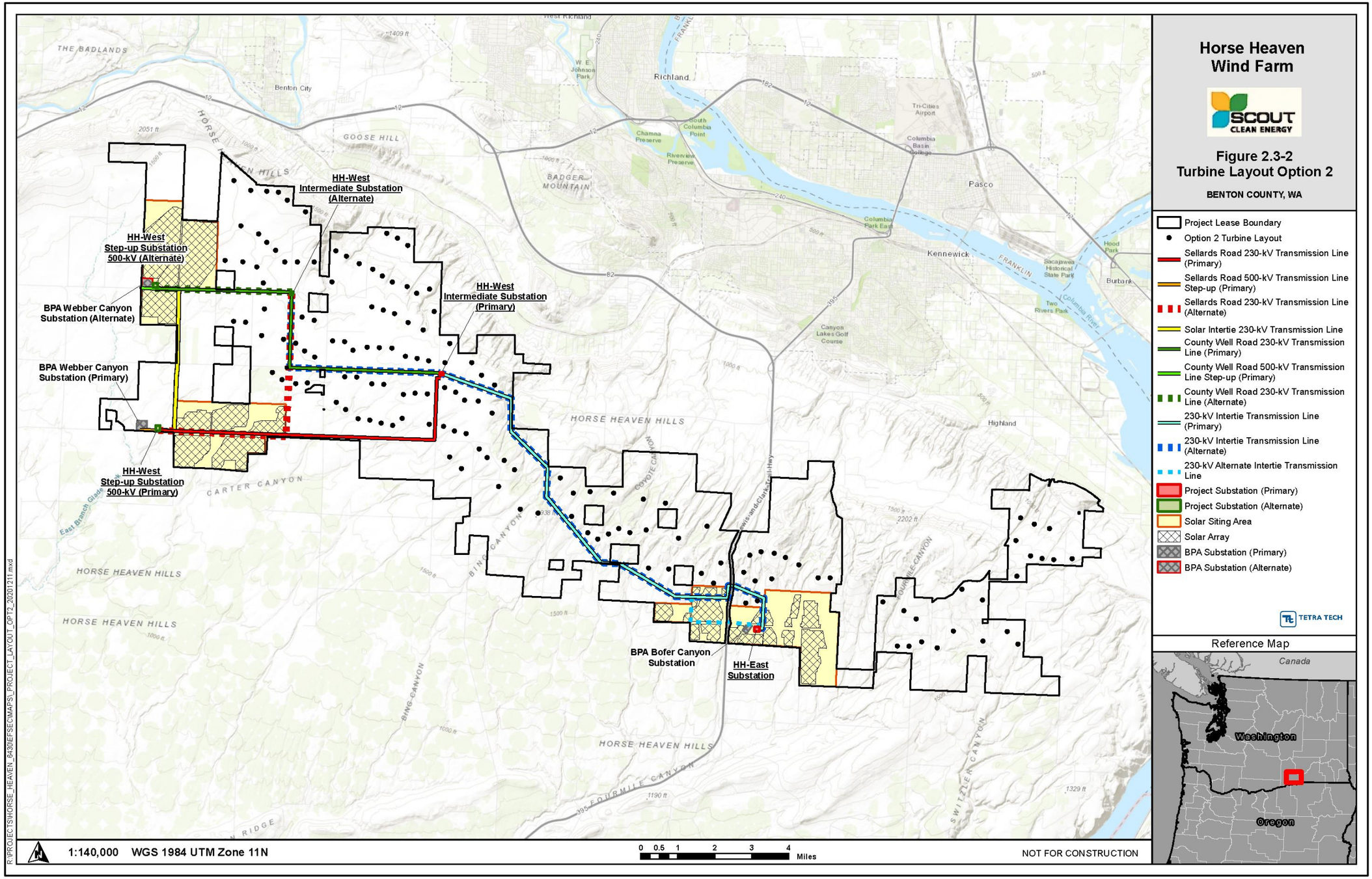


Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.11-1: Turbine Option 1 Layout



Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.11-2: Turbine Option 2 Layout

Solar Arrays

The major components of the proposed solar energy generation systems are the solar modules, tracking systems, posts, and related electrical equipment (e.g., inverters and transformers). Inverters serve the function of converting direct current to alternating current in accordance with electrical regulatory requirements. The alternating current electricity from the inverters would be routed to transformers that would increase the output voltage from the inverter (660 volts per individual unit) to the collection system voltage (34.5 kilovolts [kV]). The transformers may be co-located with the inverters or may be centrally located within the solar array. Transformers at these locations would step up the voltage from the inverters. Sound emissions would be associated with the transformers and inverters. Electronic noise from inverters can be audible but is often reduced by a combination of shielding, noise cancelation, filtering, and noise suppression.

The Project's general arrangement was reviewed and directly imported into the acoustic model so that on-site equipment could be easily identified, buildings and structures could be added, and sound emission data could be assigned to sources as appropriate. The primary noise sources during operation of the solar arrays are the inverters and transformers.

Reference sound power levels input to CadnaA were provided by equipment manufacturers, based on information contained in reference documents or developed using empirical methods. The source levels used in the predictive modeling are based on estimated sound power levels that are generally deemed to be conservative. The projected operational noise levels are based on Applicant-supplied sound power level data for the major sources of equipment. **Table 4.11-5** summarizes the equipment sound power level data used as inputs to the initial modeling analysis.

Table 4.11-5: Modeled Octave Band Sound Power Level (dB) for Solar Equipment

Equipment	Sound Power Level for Octave Band Frequency (Hz)									Broadband (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
Inverter/Transformer Block[(a)]	75	83	90	91	90	87	82	75	68	96

Source: Horse Heaven Wind Farm, LLC 2021a
Note:
[(a)] Revised sound power input levels table, November 2021
dB = decibels; dBA = A-weighted decibels; Hz = hertz

Battery Energy Storage Systems

Two BESS may be developed for the Project[54]. The BESS would be capable of storing, and later deploying, up to 150 megawatts (MW) of energy each generated by the Project using lithium-ion batteries. Each BESS would use a series of self-contained systems. For the impact analysis, the BESS were assumed to be placed adjacent to the three substations.

It is expected that all equipment associated with the BESS could operate 24 hours per day. Reference sound power levels input to CadnaA were provided by equipment manufacturers, based on information contained in reference documents or developed using empirical methods. The source levels used in the predictive modeling

[54] The Applicant provided three locations for consideration of constructing the two BESS. An analysis for all the components and distinct parts as presented in Table 2.1-1 of the ASC has been completed where enough information was provided to do so.

are based on estimated sound power levels that are generally deemed to be conservative, as they are based on louder measurements or assumptions that would generate a higher sound level. The projected operational BESS noise levels are associated with storage container cooling equipment and are based on Applicant-supplied sound power level data for the major sources of equipment (Horse Heaven Wind Farm, LLC 2022). **Table 4.11-6** summarizes the equipment sound power level data used as inputs to the initial modeling analysis.

Table 4.11-6: Modeled Octave Band Sound Power Level for Battery Energy Storage System

Equipment	Octave Band Sound Power Level (dB) by Frequency (Hz)									Broadband (dBA)
	31.5	63	125	250	500	1,000	2,000	4,000	8,000	
Single BESS[(a)]	54	64	71	77	80	79	78	73	64	85
Total BESS (50 Containers	71	81	88	94	97	96	95	90	81	102

Source: Horse Heaven Wind Farm, LLC 2021a
Note:
[(a)] BESS sound power is given per container. The modeling assumed 50 containers per storage area.
BESS = battery energy storage system; dB = decibels; dBA = A-weighted decibels; Hz = hertz

Substations

The primary ongoing noise sources at substations are the transformers, which generate sound generally described as a low humming. There are three main sound sources associated with a transformer: core noise, load noise, and noise generated by the operation of the cooling equipment. The core vibrational noise is the principal noise source and does not vary significantly with electrical load.

Transformer noise varies with transformer dimensions, voltage rating, and design and attenuates with distance. The noise produced by substation transformers is primarily caused by the load current in the transformer's conducting coils (or windings), and, consequently, the main frequency of this sound is twice the supply frequency (60 hertz [Hz]). The characteristic humming sound of transformers consists of tonal components generated at harmonics of 120 Hz. Most of the acoustical energy resides in the fundamental tone (120 Hz) and the first three or four harmonics (240, 360, 480, and 600 Hz).

Circuit-breaker operation may also cause audible noise, particularly the operation of air-blast breakers, which is characterized as an impulsive sound event of very short duration and expected to occur no more than a few times throughout the year. Because of its short duration and infrequent occurrence, circuit-breaker noise was not considered in this analysis.

The Project would include up to five on-site locations where substations could be sited to support the wind and solar facilities, which were incorporated into the acoustic modeling analysis. Substation transformer broadband sound source levels were derived based on their given specifications and/or transformers used at similar facilities. Transformer sound source data by octave band center frequency were calculated based on the estimated transformer National Electrical Manufacturers Association rating using standardized engineering guidelines (NEMA 2019). **Table 4.11-7** lists the five substations, the number of transformers planned for installation at each substation, and the transformer megavolt ampere ratings. Sound source level details cannot be disclosed because that information is considered proprietary to the transformer manufacturers.

Table 4.11-7: Modeled Octave Band Sound Power Level for Substation Transformers

Substation	Trans-former MVA Rating	Number of Trans-formers	Octave Band Sound Power Level (dB) by Frequency (Hz)									Broad-band (dBA)
			31.5	63	125	250	500	1,000	2,000	4,000	8,000	
HH-East Substation	120	1	58	78	90	92	98	95	91	86	77	101
	250	1	71	91	103	105	111	108	104	99	90	113
	192	1	66	86	98	100	106	103	99	94	85	109
	137	1	64	84	96	98	104	101	97	92	83	107
HH-West (34.5 to 230 kV; 250 MW Wind)	230[(a)]	1	100	106	108	103	103	97	92	87	80	104
	147	1	64	84	96	98	104	101	97	92	83	107
HH-West (34.5 to 230 kV; 250 MW Solar)	120	1	58	78	90	92	98	95	91	86	77	101
	192	1	66	86	98	100	106	103	99	94	85	109
HH-West (230 to 500 kV) - Sellards Road	187	4 (max 3 running at once)	66	86	98	100	106	103	99	94	85	109
HH-West (230 to 500 kV) - County Well Road	187	4 (max 3 running at once)	66	86	98	100	106	103	99	94	85	109
HH-West (230 to 500 kV) - County Well Road ALTERNATE1	230[(a)]	2	100	106	108	103	103	97	92	87	80	104

Source: Horse Heaven Wind Farm, LLC 2021a
Note:
[(a)] Calculated using Method 2, Table 4.5 Sound Power Levels of Transformers, Electric Power Plant Environmental Noise Guide. (Bolt, et al, 1984)
dB = decibels; dBA = A-weighted decibels; Hz = hertz; kV = kilovolts; max = maximum; MVA = megavolt amperes; MW = megawatts

Transmission Lines

One of the electrical effects of high-voltage transmission lines is corona. Corona is the ionization of the air that occurs at the surface of the energized conductor and suspension hardware attributable to very high electric field strength at the surface of the metal during certain conditions. Corona may result in radio and television reception interference, audible noise, light, and the production of ozone. Corona noise is generally a principal concern with transmission lines of 345 kV and greater during foul weather. Corona noise is also generally associated with foul weather conditions. Because the Project design voltage is 230 kV, no corona-related noise issues are anticipated, and any related impacts would be negligible and temporary during foul weather events.

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC

(Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on noise and vibration are discussed in Section 2.1.3 and summarized below.

Construction and Decommissioning

Because construction equipment operates intermittently and the types of machines that would be used at the Project site would change with the stage of construction, noise emitted during construction would be mobile and highly variable, making it challenging to control. The construction management protocols would include the following best management practices and noise mitigation measures to minimize noise impacts:

- Maintain all construction tools and equipment in good operating order according to manufacturers' specifications.
- Limit use of major excavating and earth-moving machinery to daytime hours.
- To the extent practicable, schedule construction activity during normal working hours on weekdays when higher sound levels are typically present and are found acceptable. Some limited activities, such as concrete pours, will be required to occur continuously until completion.
- Equip any internal combustion engine used for any purpose on the job or related to the job with a properly operating muffler that is free from rust, holes, and leaks.
- For construction devices that utilize internal combustion engines, ensure that the engine's housing doors are kept closed, and install noise-insulating material mounted on the engine housing consistent with manufacturers' guidelines, if possible.
- Limit possible evening shift work to low-noise activities such as welding, wire pulling, and other similar activities, together with appropriate material handling equipment.
- Utilize a complaint resolution procedure to address any noise complaints received from residents.

Operation

Modeling results indicated that under Turbine Option 2, Project operation would be in compliance with the WAC 173-60 regulatory requirements at NSRs and the Lease Boundary; therefore, no noise mitigation measures are needed for operation under Turbine Option 2. The following mitigation measures are proposed for operation under Turbine Option 1.

- Manufacturer-provided options for noise mitigation, including the use of low noise trailing edge (LNTE) technology and noise reduced operation (NRO) modes. LNTE consists of the addition of plastic or metal sawtooth serrations that can be affixed to the blade's rear edge to reduce blade trailing edge noise. Application of NRO modes limits the rotational speed of the turbines to reduce their sound emissions. For the Turbine Option 1 layout using General Electric (GE) 2.82-MW turbines, to demonstrate compliance with the applicable WAC regulatory limits at the Lease Boundary adjacent to Class A lands, select turbines would need to operate in NRO mode. Several NRO modes are available for the GE 2.82-MW turbine, depending on the turbine hub height. Those NRO modes and their corresponding sound source level characteristics were evaluated, and several modeling iterations were conducted to determine what level of NRO would be required to successfully demonstrate Project compliance.
- Modeling iterations for the Option 1 layout using the GE 2.82-MW turbine indicated that Turbine IDs 6, 7, and 8 would need to operate in NRO 106 mode to comply with the applicable 50 dBA nighttime limit at the Lease

Boundary adjacent to Class A EDNA land with a source sound power level of 106 dBA in NRO mode, as reported by the turbine manufacturer.

- Modeling iterations for the Turbine Option 1 layout using the GE 3.03-MW turbine found that Turbine IDs 6, 7, and 8 would need to be equipped with LNTE technology to comply with the applicable 50-dBA nighttime limit at the Lease Boundary adjacent to Class A EDNA lands. The maximum rated sound power level for the GE 3.03-MW turbine equipped with LNTE will be 106 dBA, as reported by the turbine manufacturer.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.11.2.5, Post-Adjudication Applicant Commitments.

4.11.2 Impacts of Proposed Action

4.11.2.1 Impacts during Construction

Noise

During construction, noise would be generated with the use of heavy machinery and equipment operations. **Table 4.11-8** summarizes equipment that may be used for the Project and estimates of construction sound levels at a reference distance of 50 feet and a far-field distance of 2,500 feet. Construction activities for Turbine Option 1 and Option 2, solar arrays, substations, and the BESS are assumed to use similar noise-generating equipment. Therefore, one estimated sound level source was calculated for all construction scenarios based on the concurrent operation of the equipment. Potential impacts from construction are presented as the comprehensive Project in Table **4.11-10a**.

The estimated composite site noise level assumes that all equipment would operate simultaneously at the given usage factor, over a standard 8-hour workday, to calculate the composite average daytime sound level. This assumption is conservative since locations and operating times of construction equipment could be different. Additionally, pile-driver operations are only expected to be needed during the construction of solar arrays and are the loudest individual piece of equipment and were included in the composite average daytime sound level.

Table 4.11-8: Estimated Lmax Sound Pressure Levels from Construction Equipment

Equipment	Lmax Equipment Sound Level At 50 feet (dBA)[a]	Usage Factor (%)[b]	Equipment Sound Level At 50 feet (dBA)	Equipment Sound Level at Closest NSR (dBA)[c]	Equipment Sound Level at 2,500 feet (dBA)
Crane	85	16	77	40	34
Forklift	80	40	76	39	33
Backhoe	80	40	76	39	33
Grader	85	40	81	44	38
Man Basket	85	20	78	41	35
Dozer	88	40	84	47	41
Loader	88	40	84	47	41
Scissor Lift	85	20	78	41	35
Truck	85	40	81	44	38
Welder	73	40	69	32	26

Equipment	Lmax Equipment Sound Level At 50 feet (dBA)[a]	Usage Factor (%)[b]	Equipment Sound Level At 50 feet (dBA)	Equipment Sound Level at Closest NSR (dBA)[c]	Equipment Sound Level at 2,500 feet (dBA)
Compressor	80	40	76	39	33
Concrete Pump	77	50	74	37	31
Pile Driver [d]	95	20	86	49	43
Composite				55	49

Source: Horse Heaven Wind Farm, LLC 2022
Notes:
[a] Data compiled in part from the following sources: Bolt, Beranek and Newman, Inc. 1977; FHWA 2006.
[b] The usage factor is percentage of time during operation that a piece of construction equipment is operating at full power.
[c] Closest NSR within the Lease Boundary, NSR 43 at 1,258 feet.
[d] Pile drivers are expected to be associated with solar array construction only.
dBA = A-weighted decibels; Lmax = maximum sound pressure level; NSR = noise sensitive receptor

In addition to the equipment listed in **Table 4.11-8**, generators may be used for temporary power over the approximately 19-week turbine commissioning period. Commissioning mainly includes the testing and startup of the wind turbines after they are installed, but before they begin normal operations. The generators would be relocated throughout the site as needed to facilitate turbine commissioning. The generators would be housed in a sound-attenuated container, which is specified at a maximum of 75 dBA at 50 feet. Sound emissions resulting from the generators would be low level, especially when compared to other construction equipment on site, and are not expected to add to the noise levels in the area.

Outdoor conversations may be subject to mild interference when ambient noise levels are above 55 dBA; levels above 65 dBA are considered significant interference to conversations held outdoors (EPA 1974). The estimated composite noise level of 55 dBA, shown in **Table 4.11-8,** does not exceed this guideline as a daily average noise impact. Given that there could be a noise level higher than 55 dBA at times, the construction of the Project may cause short-term, but unavoidable, noise impacts that temporarily interfere with speech communication outdoors and indoors with windows open when construction is in the area. Based on the specific location, noise levels at receptors up to 2,500 feet (49 dBA) could experience an increase to baseline noise levels up to 10 dBA for periods of time. This is expected to be limited as daytime baseline noise levels on average ranged from 37 dBA to 44 dBA and the distance attenuation calculations are conservative as they omit ground and other attenuation factors. Noise levels resulting from the construction activities could vary considerably, depending on the operations being performed and the overall condition of the equipment.

Project construction would generally occur during the day, Monday through Saturday. Furthermore, all reasonable efforts would be made to minimize the impact of noise resulting from construction activities, including implementation of standard noise reduction measures. Noise impacts from construction would be limited to the time period when construction of the closest turbine(s) to the affected NSR location(s) and would not occur throughout the entire construction stage. Due to the infrequent nature of loud construction activities at the site, the limited hours of construction, and the implementation of noise mitigation measures, the temporary increase in noise due to construction would be limited.

Blasting

Depending on subsurface conditions, blasting may be necessary to loosen rock before excavation (Horse Heaven Wind Farm, LLC 2022). Blasting is a short-duration event compared to other rock removal methods such as track rig drills, rock breakers, jack hammers, rotary percussion drills, core barrels, and/or rotary rock drills. Blasting creates a sudden and intense airborne noise potential, as well as local ground vibration. Modern blasting techniques include electronically controlled ignition of multiple small explosive charges in an area of rock. The detonations are timed so that the energy from one detonation destructively interferes with others, which is called wave canceling. Impulse (instantaneous) noise from blasts could reach up to 140 dBA at the blast location, attenuating to approximately 90 dBA at 500 feet from the blast (Horse Heaven Wind Farm, LLC 2021b). This instantaneous noise is typically less than 1 second in duration and, as such, has little impact on the overall time-weighted average at an NSR. Additionally, at 1,000 feet, the sound level would attenuate to 84 dBA. This instantaneous noise level is below typical worker health-related exposure levels for an 8-hour workday of 85 dBA; therefore, no negative health impacts would be expected from blasting. Based on this understanding, noise from this source would result in low, temporary, feasible, and limited impacts from blasting.

Vibration

Ground vibration could occur during large equipment operations and pile driving, drilling, and blasting. Vibration would be limited to normal construction hours (during the daytime), be of short duration, and occur in the direct area under construction. With the closest residence being over 1,000 feet from expected construction locations, no highly vibration-sensitive buildings or residences are located within the FTA's furthest screening distance of 100 feet for construction equipment operations.

Impact Rating

The results presented in **Table 4.11-8** and in this section are discussed in the context of the impact rating system:

- **Magnitude –** Construction noise impacts at the closest NSR locations would be medium as the noise could be loud enough at times to temporarily interfere with speech communication outdoors and indoors with windows open and could increase noise levels between 5 dBA and 10 dBA above baseline. Vibration impacts would be low and would not impact off-site receptors.
- **Duration –** The impacts of construction noise and vibration would be temporary and would only occur during construction in the immediate vicinity of an NSR, not throughout the entire period of the construction stage. As construction activities move from location to location within the Lease Boundary, noise and vibration sources would move with them. NSR locations not near the areas of construction would experience few to no impacts from distant construction equipment or activities.
- **Likelihood –** Noise impacts would be probable during the construction stage. Vibration impacts would be feasible during the construction stage during blasting and pile driving activities.
- **Spatial Extent –** The spatial extent of noise and vibration would be limited to the area currently under construction. Noise and vibration may be perceived beyond the Lease Boundary, but the impacts would be temporary.

Activities during construction of all components of the Project would result in medium, temporary, probable, and limited impacts from noise and vibration.

4.11.2.2 Impacts during Operation

This section describes the model used for the assessment of noise during Project operation, input assumptions used to calculate noise levels due to the Project's normal operation, and the results of the noise impact analysis (Horse Heaven Wind Farm, LLC 2022). Since the equipment listed above is anticipated to operate simultaneously, two modeling scenarios were considered: one with Turbine Option 1 operating with the solar arrays, substations, and BESS and the second with Turbine Option 2 operating with the solar arrays, substations, and BESS. Potential impacts from operations are presented as the comprehensive Project in **Table 4.11-10b**.

Combined Noise Impacts of Components

Turbine Option 1

The modeling results in **Table 4.11-9** are presented based on receptor locations (NSR ID) and their participation status regarding the Project (i.e., residents with whom the Applicant has a lease agreement are termed "Project participants"). The participation status identifications are as follows:

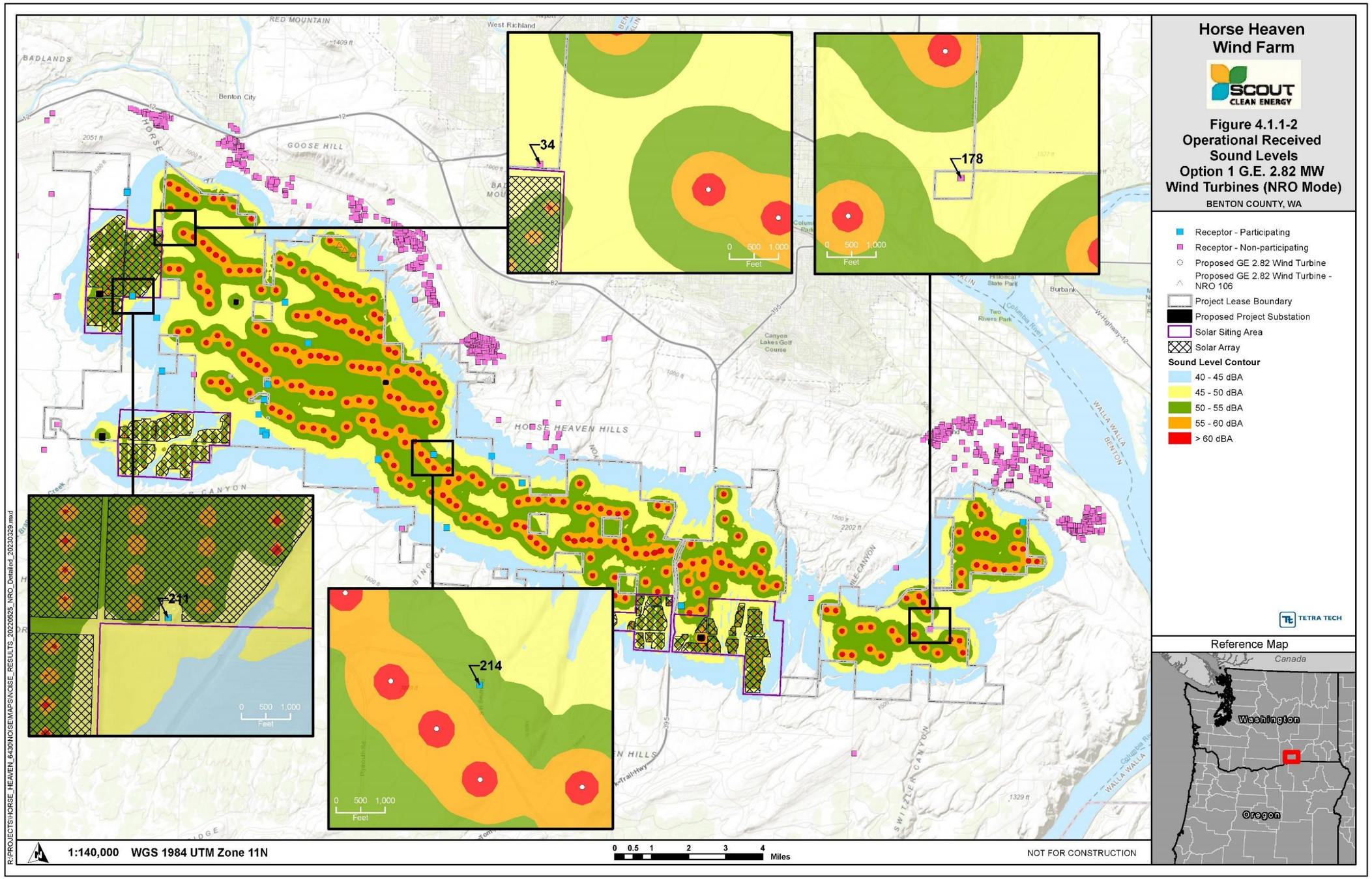
- Participant – NSR locations that are Project participants
- Outside Project – NSR locations that are not Project participants
- In Pursuit – NSR locations that are being pursued as Project participants

These results presented in **Figure 4.11-3** show that noise propagation is mainly affected by distance, with limited effects from changes in terrain. The major areas of noise are the individual turbine locations and the substations. The maximum modeled noise level at the 21 participating NSR locations was 54 dBA at NSR 214. The maximum modeled noise level at 720 non-participating NSR locations was 48 dBA, at NSR 34 and NSR 178. The maximum modeled noise level at the one NSR with an in-pursuit status was 49 dBA at NSR 211. The maximum modeled noise level at the Lease Boundary was 63 dBA (Horse Heaven Wind Farm, LLC 2022). At these NSR locations, Turbine Option 1 increased baseline noise levels between 3 dBA and 21 dBA.

Table 4.11-9: Maximum Modeled Operational Noise Levels at Residential Receptors and Boundary

NSR ID	Participation Status[a]	EDNA and Noise Limit (dBA)	Option 1, Modeled (dBA)	Baseline (dBA)[b]	Option 1, Predicted (dBA)[c]
214[d]	Participant	Class C / 70	54	33	54
34[d]	Outside Project	Class A / 50	48	45	48
178[d]	Outside Project	Class A / 50	48	46	50
211[d]	Participant	Class C/ 70	49	37	49
Boundary[e]	Outside Project	Class C / 70	63	38	63

Source: Horse Heaven Wind Farm, LLC 2022
Notes:
[a] As of November 2021.
[b] Most representative baseline level to the NSR.
[c] Predicted noise level calculated by logarithmically adding the modeled and baseline noise levels together
[d] Revised modeling results from November 2021 (Table O-1, Appendix O, Horse Heaven Wind Farm, LLC 2022).
[e] Modeled noise levels provided in Horse Heaven Wind Farm, LLC's response to Data Request No. 3, July 2021 (Horse Heaven Wind Farm, LLC 2021b)
dBA = A-weighted decibels; EDNA = Environmental Designation for Noise Abatement; NSR = noise sensitive receptor



Source: Horse Heaven Wind Farm, LLC 2021c

Figure 4.11-3: Operational Received Sound Levels Option 1 G.E. 2.82 MW Wind Turbines (Noise-Reduced Operation Mode)

Turbine Option 2

The modeling results show that noise propagation is mainly affected by distance, with limited effects from changes in terrain. The major areas of noise are the individual turbine locations and the substations. The maximum modeled noise level at the 21 participating NSR locations was 48 dBA at NSR 214. The maximum modeled noise level at 720 non-participating NSR locations was 42 dBA at NSR 178. The maximum modeled noise level at the one NSR with an "in pursuit" status was 39 dBA at NSR 211. The maximum modeled noise level at the Lease Boundary was 54 dBA. At these NSR locations, Turbine Option 2 increased baseline noise levels between 2 dBA and 15 dBA. Modeling results are summarized in **Table 4.11-10** and illustrated in **Figure 4.11-4**.

Table 4.11-10: Maximum Modeled Operational Noise Levels at Residential Receptors and Boundary

NSR ID(s)	Participation Status[a]	EDNA and Noise Limit (dBA)	Option 2, Modeled (dBA)	Baseline (dBA)[b]	Option 2, Predicted (dBA)[c]
214[d]	Participant	Class C / 70	48	33	48
178[d]	Outside Project	Class A / 50	42	38	48
211[d]	In Pursuit	Class A / 50	39	37	41
Boundary[e]	Outside Project	Class C / 70	54	38	54

Source: Horse Heaven Wind Farm, LLC 2022
Notes:
[a] As of November 2021.
[b] Most representative nighttime baseline noise level measurement to the NSR.
[c] Predicted noise level calculated by logarithmically adding the modeled and baseline noise levels together.
[d] Table O-1, Appendix O, Horse Heaven Wind Farm, LLC 2022.
[e] Modeled noise levels provided in Horse Heaven Wind Farm, LLC's response to Data Request No. 3, July 2021 (Horse Heaven Wind Farm, LLC 2021b).
dBA = A-weighted decibels; EDNA = Environmental Designation for Noise Abatement; NSR = noise sensitive receptor

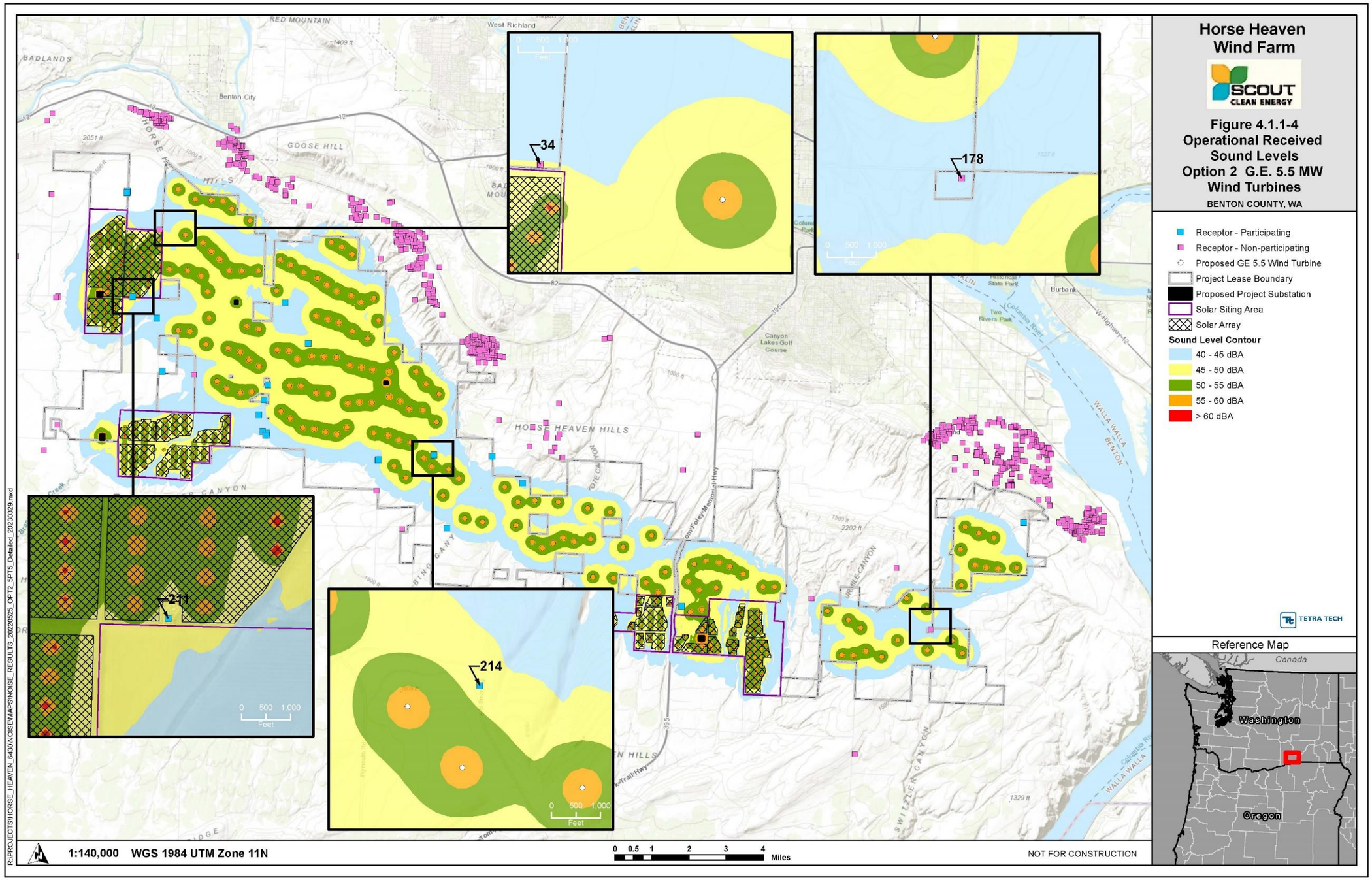
Turbine Option Summary

Maximum predicted results outlined in the tables above were evaluated against applicable WAC regulatory requirements, both at NSRs and at the Lease Boundary. For NSRs located on land with a Class A Environmental Designation for Noise Abatement (EDNA) (land zoned RL-5) and for non-participating NSRs located on Class C EDNA land (land zoned Growth Management Act Agricultural District), compliance was conservatively assessed relative to the WAC 173-60.040 50 dBA nighttime limit. The compliance status of participating NSRs located on Class C EDNA land was evaluated against the applicable daytime and nighttime 70-dBA limit for Class C lands. At the Lease Boundary, where the Project is adjacent to Class A EDNA land, compliance was assessed relative to the 50 dBA nighttime limit. At the Lease Boundary, where the Project is adjacent to Class C EDNA land, compliance was assessed relative to the 70-dBA limit.

The maximum noise impacts occurred under the Turbine Option 1 turbine layout modeled, with compliance achieved at all NSRs and at the property boundary based on the applicable WAC 173-60 regulatory limits described previously. While not all boundary locations were below the Class A noise limit, all locations with received sound levels greater than 50 dBA are classified as Class C land, where the applicable daytime and nighttime sound limit is 70 dBA.

Based on a study conducted in 2019, low-frequency noise can be underestimated in commercial wind turbine noise propagation modeling by up to 1.5 dBA (Chiu and Lung 2020). The model for this study was set up to provide conservative results that would incorporate a +/-2 dBA level of uncertainty. However, if 1.5 dBA was

added to the results at the NSR locations found outside the Lease Boundary that were primarily impacted by wind turbine noise sources, the modeled results would remain at or below the Class A limit of 50 dBA.



Source: Horse Heaven Wind Farm, LLC 2022

Figure 4.11-4: Operational Received Sound Levels Option 2 G.E. 5.5 MW Wind Turbines

Vibration

Ground vibrations are not expected to occur during Project operation under either turbine option or as a result of any Project components. A study of the effect of the wind-turbine structure interaction on the behavior of a turbine foundation and the generation of ground-based vibrations around a working commercial wind turbine found that commercial wind turbines create vibration less than 0.001 millimeter/second (mm/s) at 1 kilometer (0.6 miles) (Gonzalez-Hurtado et al. 2017). This is well below the understood vibration threshold of perception of 0.51 mm/s; therefore, the vibration from wind turbine operations would be negligible.

In addition to vibration that travels through the ground, vibration can also travel through the air as infrasound. Infrasound levels are low when human sensitivity to these frequencies is accounted for. Even close to the turbines, the infrasonic sound pressure level is much below the normal hearing threshold, and infrasound is thus not considered a problem with commercial wind turbines (Møller and Peterson 2011).

Impact Rating

The results presented above are discussed in the context of the impact rating system:

- **Magnitude** – Noise levels at the closest NSR locations would be medium as the noise impacts could be at or near the WAC nighttime noise limit of 50 dBA, would not interfere with outdoor or indoor activities, but would increase noise levels more than 10 dBA at NSR locations with low baseline noise levels.
- **Duration –** The duration of noise impacts would be long term for the entirety of Project operation.
- **Likelihood –** The noise impacts would be unavoidable during operation.
- **Spatial Extent –** The special extent would be local and confined to NSR locations in close proximity to wind turbines.

Noise impacts from operation are expected to be moderate at NSR locations in close proximity to wind turbines. Turbine Option 2 is predicted to generate lower noise levels than Turbine Option 1, but under both options, the predicted noise levels would be less than the applicable noise limit. Activities during operation of all components of the Project would result in medium, long term, unavoidable and local impacts from noise and vibration.

4.11.2.3 Impacts during Decommissioning

Noise

Due to the limited information available regarding decommissioning activities, noise impacts during this period are not specifically calculated. The primary sources of noise during decommissioning are expected to be heavy equipment operations similar in scope to those used during construction, but during decommissioning this noise would have a shorter duration at each location. Furthermore, no pile drivers or blasting are expected to be needed during decommissioning. However, it is reasonable to assume that jackhammers or similar equipment may be needed to break up concrete. It is therefore expected that noise impacts would be less than or similar to those calculated for construction, and these impacts can be used as a conservative estimate. Potential impacts from construction are presented as the comprehensive Project in **Table 4.11-11c**.

Vibration

Ground vibration could occur during large equipment operations during decommissioning. Vibration would be limited to normal construction hours (during the daytime), would be of short duration, and would occur in the area directly under the place of use. No drilling, pile driving, or blasting is expected to occur during this stage;

therefore, vibration caused by decommissioning is expected to be less than vibration caused by construction. With the closest residence being over 1,000 feet from expected construction locations, no highly vibration-sensitive buildings or residences were located within the FTA's furthest screening distance of 100 feet for construction equipment operations.

Impact Rating

The results presented in Section 4.11.2.1 are discussed in the context of the adopted impact rating system below:

- **Magnitude** – Noise levels at the closest NSR locations would be medium as the noise impacts could be loud enough at times to temporarily interfere with speech communication outdoors and indoors with windows open and could increase noise levels between 5 dBA and 10 dBA above baseline. Vibration impacts are not expected.
- **Duration –** The duration of decommissioning noise and vibration impacts would be temporary and occur only when decommissioning is occurring in the immediate area of a sensitive receptor and not during the entire period of this stage.
- **Likelihood –** Noise impacts would be probable during the decommissioning stage. Vibration impacts are unlikely to occur during the construction stage.
- **Spatial Extent –** The spatial extent for noise and vibration would be limited to the area currently under construction. Noise may be perceived beyond the Lease Boundary, but the impacts would be temporary.

Activities during decommissioning of all components of the Project would result in medium, temporary, probable, and limited impacts from noise and vibration.

4.11.2.4 Recommended Mitigation Measures

The Washington Energy Facility Site Evaluation Council (EFSEC) has identified additional mitigation measures for the Project to avoid impacts on noise and vibration. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action.

Construction and Decommissioning

The following measures are recommended for mitigation of noise resulting from Project construction and decommissioning:

N-1:[55] Avoid laydown and equipment storage/parking areas closer than 2,500 feet from the nearest NSR location.

Rationale: These laydown and storage areas would have more noise sources for longer periods of time than other areas; therefore, siting these locations further from NSR locations would limit the sound level and the duration that such equipment could impact an NSR.

N-2: Limit large, noise-generating equipment operations, such as earth-moving equipment, cranes, and trucks, as outlined in **Table 4.11-8**, to daytime hours (between 7 a.m. and 10 p.m.), and limit the loudest and

[55] N-: Identifier of numbered mitigation item for Noise

most impulsive pieces of construction equipment and activities, such as pile-driver operations and blasting, to typical working hours only: 7 a.m. to 6 p.m., Monday through Saturday.

Rationale: This measure would ensure that a typical workday would not include pile-driver operations or blasting during evening hours (6 p.m. to 10 p.m.) but could include some on-site activities during nighttime hours such as early-morning setup and preparation for the workday. Nighttime operations would be atypical. The purpose is to limit noise impacts during sensitive hours while allowing contractors some flexibility.

N-3: Monitor noise during nighttime construction operations (between 10 p.m. and 7 a.m.), when construction activities have the potential to impact NSRs or reduce activities to ensure that construction noise does not exceed state noise limits.

Rationale: This monitoring would take place throughout the entirety of the nighttime hours or until construction activities cease.

N-4: Update the Applicant's noise complaint resolution procedure to better address and respond to noise complaints from the public. The updates include the following: a complaint hotline during construction and providing a phone number to be posted on signage throughout the construction project and ensure that current site contact information is maintained with EFSEC. The Applicant would log all correspondence and promptly follow up with inquiries to provide appropriate resolution. The correspondence and resolutions would be logged throughout the construction process, and the log would be made available to EFSEC during routine reporting or upon request. During the operation stage, the site would be staffed and contact information would be available.

Rationale: This measure would better address and respond to noise complaints from the public.

Operation

Additional recommendations for mitigation of operational noise include the following:

N-5: Establish a noise complaint resolution procedure similar to that proposed for construction and decommissioning to better address and respond to noise complaints.

Rationale: This measure would better address and respond to noise complaints from the public.

4.11.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[56]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remains. The additional Applicant commitments identified above do not change the impact ratings previously provided for noise and vibration in the Draft EIS, and the impact ratings remain the same.

[56] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

4.11.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn, depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This Environmental Impact Statement weighs the potential impacts from noise that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.11-11a, 4.11-11b, and 4.11-11c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to noise and vibration.

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Table 4.11-11a: Summary of Potential Impacts on Noise and Vibration during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Noise and Vibration (Noise from Construction Equipment)	**Comprehensive Project**	Most noise sensitive receptors would receive sound levels below 55 dBA during construction, with the potential to be up to 10 dBA over baseline. One noise sensitive receptor could receive sound levels at 55 dBA during construction of one turbine.	Medium	Temporary	Probable	Limited	**N1:** Avoid laydown and equipment storage/parking areas near NSRs **N2:** Limit the use of noise-generating equipment to daytime hours (7 a.m. to 10 p.m.) and loud equipment to working hours (7 a.m. to 6 p.m.) **N-3:** Monitor noise during nighttime construction (10 p.m. to 7 a.m.) with the potential to impact NSRs **N-4:** Update the Applicant's noise complaint resolution procedure to include contacting and reporting details	None identified
Noise and Vibration (Noise from Blasting)	**Comprehensive Project**	Sound levels can reach up to 140 dBA at blast locations and 90 dBA at 500 feet.	Low	Temporary	Feasible	Limited	**N2:** Limit blasting to working hours (7 a.m. to 6 p.m.)	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project" were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC can identify to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that remain even after all mitigation measures identified by EFSEC have been applied.
dBA = A-weighted decibels; EFSEC = Washington Energy Facility Siting Evaluation Council; NSR = Noise Sensitive Receptor

Table 4.11-11b: Summary of Potential Impacts on Noise and Vibration during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Noise and Vibration (Operational Noise)	**Comprehensive Project**	Noise would be generated by the operation of wind turbines, inverters, transformers, and the corona effect.	Medium	Long Term	Unavoidable	Local	**N-5:** Establish a noise complaint resolution procedure similar construction	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC can identify to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that remain even after all mitigation measures identified by EFSEC have been applied.
EFSEC = Washington Energy Facility Siting Evaluation Council; NSR = Noise Sensitive Receptor

Table 4.11-11c: Summary of Potential Impacts on Noise and Vibration during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Noise and Vibration (Noise from Decommissioning Equipment)	**Comprehensive Project**	Most noise sensitive receptors would receive sound levels below 55 dBA during construction, with the potential to be up to 10 dBA over baseline. One noise sensitive receptor could receive sound levels at 55 dBA during construction of one turbine.	Medium	Temporary	Probable	Limited	**N1:** Avoid laydown and equipment storage/parking areas near NSRs **N2:** Limit the use of noise-generating equipment to daytime hours (7 a.m. to 10 p.m.) and loud equipment to working hours (7 a.m. to 6 p.m.) **N-3:** Monitor noise during nighttime decommissioning (10 p.m. to 7 a.m.) with the potential to impact NSRs **N-4:** Update the Applicant's noise complaint resolution procedure to include contacting and reporting details	None identified

Notes:
[a] The impacts related to each component, including, "comprehensive Project" were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC can identify to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that remain even after all mitigation measures identified by EFSEC have been applied.
dBA = A-weighted decibels; EFSEC = Washington Energy Facility Siting Evaluation Council; NSR = Noise Sensitive Receptor

4.11.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to noise and vibration from the construction, operation, and decommissioning of the Project would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.12 Recreation

This section describes impacts on recreational uses and areas that could occur in the study area as a result of the construction, operation, and decommissioning of the Horse Heaven Wind Farm (Project, or Proposed Action) proposed by Horse Heaven Wind Farm, LLC (Applicant), or under the No Action Alternative. Section 3.12 presents the affected environment for recreation. Safety of recreation enthusiasts is discussed in this section and Section 4.13 Public Health and Safety presents additional analysis of safety within the Project vicinity and Lease Boundary.

Under the Washington State Environmental Policy Act, this Environmental Impact Statement (EIS) weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors when determining the significance of identified potential impacts (WAC 197-11-330 and WAC 197-11-794). These impacts were qualitatively assessed based on the method of analysis described in Section 4.12.1. The impact rating system is summarized in **Table 4.12-1**.

Table 4.12-1: Impact Rating Table for Recreation from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

As identified in **Table 4.12-2**, the determination of impact magnitude is based on the continued ability of an individual to use a recreational facility, the impact on the quality of the recreational experience, and the potential for the impact to be a public health and safety concern.

Table 4.12-2: Criteria for Assessing Magnitude of Impacts on Recreation Resources

Magnitude of Impacts	Description
Negligible	**Use:** Use of recreational areas would remain unchanged. **Recreational Experience:** Quality of recreational experience for users or their satisfaction with the recreational resource remains unchanged. **Public Health and Safety:** No potential of an incident to occur affecting public health and safety.
Low	**Use:** Recreational activities could be measurably altered, but impacts would not change the ability of recreationists to use the area or perform the activity. **Recreational Experience:** Quality of recreational experience for users may change. Some values that recreationists may deem as important to their individual experience may become altered. **Public Health and Safety:** No potential of an incident to occur affecting public health and safety.
Medium	**Use:** Recreational activities could be considerably altered. Recreationists may experience slight crowding or concern with the Project affecting the ability of previous recreational use. **Recreational Experience:** Quality of recreational experience for users would change measurably. Most values that a recreationist deems as important to their individual experience would become altered. **Public Health and Safety:** A single public health and safety incident could occur.
High	**Use:** Recreational activities could be severely altered or recreationists may be unable to use the resource altogether. **Recreational Experience:** Quality of recreational experience for users would change considerably. All values that a recreationist deems as important to their individual experience may become altered. **Public Health and Safety:** Multiple incidents affecting public health and safety or a fatality could occur.

Background

For some recreationists, undeveloped lands, scenery, and the quiet of nature are important aspects of the recreational experience. Recreational users' sensitivity to visual quality and landscape character varies depending on their reasons for visiting an area. Impacts associated with the Project that may affect the visual setting, noise, and access to recreational sites are noted in this section and evaluated in greater detail in other sections, as follows:

- Impacts related to visual setting (including light and glare) are addressed in Section 4.10.
- Impacts related to noise and vibration are addressed in Section 4.11.
- Impacts related to traffic are addressed in Section 4.14.

4.12.1 Method of Analysis

The study area for recreation consists of the Lease Boundary and a 25-mile area surrounding the Lease Boundary, as defined in the Application for Site Certification (ASC) (Horse Heaven Wind Farm, LLC 2022). Laws and regulations used to determine the Project's potential impacts on recreation are summarized in Table 3.12-1. Information reviewed to identify the potential impacts on recreational uses and areas in the study area was obtained from federal agencies, state agencies, local planning documents, and public scoping. Impacts on

recreation within the study area were qualitatively assessed based on the impact evaluation approach defined in Section 4.1.

Applicant Commitments

The Applicant identified measures and/or best practices that are intended to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on recreation resources are discussed in Section 2.1.3 and summarized below.

- The Applicant would construct support facilities with non-reflective materials in muted tones and would use white or light gray, non-reflective paint on turbines to reduce the need for daytime aviation lighting and minimize glare from the turbines as required by Federal Aviation Administration Advisory Circular 70/7460-1M.
- As applicable, Project construction and operation would follow site-specific best management practices to minimize potential impacts on noise, traffic, and visual surroundings, as described in the respective resource sections of this application.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.12.2.6, Post-Adjudication Applicant Commitments.

4.12.2 Impacts of Proposed Action

Recreation sites discussed in Section 3.12 may be affected by the Project. These sites offer recreational opportunities, including parks and places for camping, hiking, hunting on public lands, fishing, boating, swimming, wildlife viewing (including bird watching), and recreational sports (e.g., paragliding).

The study area includes the Ice Age Floods National Geologic Trail (IAF-NGT). However, the Project's Lease Boundary is outside of the physical Ice Age flood pathway as identified on the IAF-NGT, Washington Section Map (DNR 2016). The Project's components would not directly impact the prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the Ice Age floods (Horse Heaven Wind Farm, LLC 2022), though indirect impacts on the visual setting would occur. The 24 features within the study area are identified in Section 3.12, Table 3.12-4. The nearest IAF-NGT feature is Badger Coulee, approximately 0.84 miles north of the Project Lease Boundary. None of the IAF-NGT's features are within the Lease Boundary, and the IAF-NGT is not analyzed further. Visual setting is discussed in more detail in Section 4.10.

Up to 10 turbines,15.3 miles of collector cable, and a portion of the Sellards Solar Field may be located on lands that would be leased from the Washington Department of Natural Resources (DNR). The 10 turbines located on DNR-administered land would limit recreational activities to outside the footprint of each turbine. Passive recreational uses within the proposed transmission line corridor would be possible on DNR land where practical and are not addressed further.

The portion of the Sellards Solar Field that overlaps DNR-administered land would limit recreational activities to outside the solar field's fence. Currently, hunting on public lands, hiking, and bird watching may occur on these DNR-administered lands, and impacts related to the construction, operation, and decommissioning of the Sellards Solar Field are analyzed in the following subsections.

Construction, operation, and decommissioning activities would take place a substantial distance from waterways or wetlands and are not likely to cause water quality impacts in the event of an accidental release. No in-water construction or access to the Project by water is proposed; therefore, the activities would not conflict with in-water recreation within the study area and are not analyzed further herein.

Impacts relating to the construction, operation and maintenance, and decommissioning of the components of the Project are discussed in more detail below.

4.12.2.1 Impacts during Construction

Construction activities could limit access to recreational facilities or conflict with recreational uses. Impacts related to the construction of the two turbine options and other components are described below. Impacts of the construction of the overall Project are described last.

At peak construction periods, workers may seek accommodation in RV parks or campgrounds. The Applicant estimates that 62 percent of the positions during the construction of Phase 1 of the Project, the phase requiring the most workers, would be local workers. Non-local employment would average about 113 workers over the 11-month construction period, with a peak of approximately 177 non-local workers employed by the Project. Temporary accommodation in the study area includes RV parks and campsites. Facilities in Benton and Franklin Counties include 12 RV parks and campgrounds, with a total of 1,320 RV spaces (Horse Heaven Wind Farm, LLC 2022). Benton County may experience small increases in costs of park use and recreation due to related temporary increases in population.

Turbine Option 1

Of all the Project components, installation of the turbines is expected to require the largest number of workers. However, turbine installation would likely be phased by specialty (earthwork, concrete, construction of components, etc.), minimizing the quantity of total RV park or campground space required for housing at one time.

Visual impacts on recreation resources introduced during construction would vary depending on the specific recreational resource being considered. Depending on the location of a specific recreational resource, views of construction activities or turbines may be fully or partially obstructed or viewers may have more wide-open views. Impacts from light would be negligible, while impacts from glare would be low during the construction of the Project. Visual effects resulting from installation of the turbines, including light and glare, are addressed in more detail in Section 4.10.

Construction-related noise would be temporary and would be noticeable at recreation sites that are close to the Lease Boundary. Noise could affect the recreational experience of those engaged in hunting on public lands, fishing, or camping nearby. See Section 4.11 for a detailed analysis of noise generated by installation of the turbines.

Construction vehicles and the transportation of materials could cause temporary delays on local roads used to access recreational activities in the study area during the installation of turbines. Public roads would require intersection improvements, and access roads would have to be constructed. The magnitude of potential impacts related to each recreational site during the installation of turbines within the study area is summarized in **Table 4.12-3**. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during construction.

Installation of turbines would introduce a risk to paragliders and hang gliders who use the 20 launch sites known within the study area. The main risks to these recreationists would be:

- Losing safe landing space in the event of an in-flight emergency requiring an unanticipated landing in an area containing turbines and supporting infrastructure.
- Collision with a turbine, supporting infrastructure, or construction equipment if a paraglider or hang glider loses the ability to steer mid-flight.

Construction activities under Turbine Option 1 would result in impacts on recreation resources as follows:

- **Recreation – Use:** Construction under Turbine Option 1 would limit recreational activities on public land in areas near construction and may impede cyclists' use of established routes during the transportation of equipment and materials, resulting in a local, medium, short term, unavoidable impact during construction.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by construction under Turbine Option 1 could occur at nearby recreation sites, resulting in a high, unavoidable, regional impact on recreational sites beyond neighboring receptors. Impacts would be long term once the turbines were constructed.
- **Recreation – Public Health and Safety:** Construction under Turbine Option 1 would have the potential to affect the health and safety of paragliders and hang gliders regionally, resulting in a medium, unavoidable, long term impact for the life of the Project.

Turbine Option 2

The impacts on recreation during the Project's construction stage under Turbine Option 2 would be similar to those described for Turbine Option 1, as follows:

- **Recreation – Use:** Construction under Turbine Option 2 would limit recreational activities on public land in areas near construction and may impede cyclists' use of established routes during the transportation of equipment and materials, resulting in a local, medium, short term, unavoidable impact during construction.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by construction under Turbine Option 2 could occur at nearby recreation sites, resulting in a high, unavoidable, regional impact on recreational sites beyond neighboring receptors. Impacts would be long term once the turbines were constructed.
- **Recreation – Public Health and Safety:** Construction under Turbine Option 2 would have the potential to affect the health and safety of paragliders and hang gliders regionally, resulting in a medium, unavoidable, long term impact for the life of the Project.

Solar Arrays

The three proposed solar arrays would have common impacts on recreation during the Project's construction stage.

Similar to the construction of the turbines, workers may seek accommodation in RV parks or campgrounds during peak construction periods.

Visual impacts on recreation resources would be limited due to the solar arrays' low profile. Construction activities and the presence of equipment and work crews during construction could be visible from nearby recreational sites. Impacts from light and glare would vary depending on the specific recreational resource being considered. Visual effects resulting from construction of the solar arrays are addressed in more detail in Section 4.10.

Construction-related noise would be temporary and is not expected to be noticeable at most recreation sites. Noise could affect the recreational experience of those engaged in the use of multi-use trails, hunting on public lands, fishing, or camping nearby. See Section 4.11 for a detailed analysis of noise generated by construction of the solar arrays.

Minor delays on local roads used to access recreational activities are expected during construction of the solar arrays due to the transportation of construction materials. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during construction.

The construction of the solar arrays would introduce a risk to paragliders and hang gliders. The main risk would be the loss of safe landing space in the event of an in-flight emergency requiring an unanticipated landing in an area containing solar arrays, supporting infrastructure, or construction equipment.

Construction of the Sellards Solar Field would restrict access to an entire parcel of DNR-administered land and may remove land use that the parcel currently offers recreationists.

Construction of the solar arrays would result in impacts on recreation resources, as follows:

- **Recreation – Use:** The Project's potential to affect access to public land resulting from construction of the Sellards Solar Field would result in a high, long term, unavoidable, limited impact.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by construction of the solar arrays could occur, resulting in a regional, high, unavoidable impact on recreational sites beyond neighboring receptors. Impacts would be long term once the solar arrays were constructed.
- **Recreation – Public Health and Safety:** Construction of the solar arrays would have the potential to affect the health and safety of paragliders and hang gliders regionally, resulting in a medium, unavoidable, long term impact for the life of the Project.

Battery Energy Storage Systems

The three locations proposed for the construction of up to two battery energy storage systems (BESS) would have common impacts on recreation during the Project's construction stage. Activities during the Project's construction stage for the BESS would last approximately nine months and may impact recreational opportunities within the study area.

Visual impacts on recreation resources would be negligible due to the BESS' low profile and features in the area being taller than the BESS. Impacts from light and glare would be negligible. Construction work would be concentrated during daylight hours, minimizing the potential need for temporary night-time lighting. Visual effects resulting from construction of the BESS are addressed in more detail in Section 4.10.

Impacts caused by construction-related noise would be temporary and are not expected to be noticeable at most recreation sites. See Section 4.11 for a detailed analysis of noise generated by the construction of the BESS.

Delays on local roads used to access recreational activities are not expected during construction of the BESS due to the small number of large components and fewer trips required to transport construction materials. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during construction.

Construction of the BESS is not expected to pose a risk to paragliders and hang gliders who use the 20 launch sites known within the study area. The proposed disturbance footprint for the BESS is negligible compared to other components, and paragliders are expected to be able to easily avoid emergency landing within the construction area of the BESS.

Construction activities for the BESS would result in negligible, temporary, feasible, local impacts on recreation use, experience, and public health and safety.

Substations

The five proposed substations would have common impacts on recreation during the Project's construction stage. Activities during the construction of the substations would last less than six months and would have a negligible impact on recreational opportunities within the study area due to the smaller disturbance footprint and limited height compared to other Project components.

Visual impacts on recreation resources would be limited during construction of the substations. Construction activities and the presence of equipment and work crews during construction could be visible from nearby recreational sites. Impacts from light and glare would vary depending on the specific recreational resource being considered. Visual effects resulting from construction of the substations are addressed in more detail in Section 4.10.

Construction-related noise would be temporary and is not expected to be noticeable at recreation sites. See Section 4.11 for a detailed analysis of noise generated by the construction of the substations.

Delays on local roads used to access recreational activities could occur during construction of the substations during the transportation of construction materials. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during construction.

Construction of the substations is not expected to impact existing recreational paragliding and hang gliding activity. The proposed disturbance footprint and construction area for the substations is negligible compared to other components of the proposed Project, and paragliders and hang gliders are expected to be able to easily avoid landing within the fenced area of the substations.

Compared to the construction of other infrastructure, the potential to affect the health and safety of recreationists using the area for paragliding and hang gliding is unlikely, and therefore results in a negligible impact. Construction activities are considered temporary due to the short time required during the construction period in comparison to the turbines and solar arrays. Impacts may occur to neighboring receptors.

Construction activities for the substations would result in negligible, temporary, feasible, and local impacts on recreation use, experience, and public health and safety.

Comprehensive Project

Construction of the combined Project components would result in both direct and indirect impacts on recreationists who use the Project's study area for recreational activities.

Indirect impacts related to visual resources and noise could occur at recreation sites. Paragliders' and hang gliders' safety would be affected by the construction of the Project. Construction vehicles and the transportation of materials could cause temporary delays on local roads used to access recreational activities in the study area during construction. Public roads would require intersection improvements, and new access roads would have to be constructed.

RV parks and campgrounds may have increased occupancy during construction of the comprehensive Project. On-site construction activities are expected to employ an average of 300 workers during the Project's construction period, and non-local employment would average approximately 113 workers. Existing limits on the length of stay in public camping areas would minimize any potential impacts on park users. Benton County may experience small increases in costs for park use and recreation due to related temporary increases in population.

Activities during construction of all components of the Project would result in impacts on recreation, as follows:

- **Recreation – Use:** The comprehensive Project's potential to affect the use of public land near the Project and access to public land resulting from the construction of the Sellards Solar Field would result in a local, unavoidable, high, long term impact.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by the construction of the comprehensive Project could occur at nearby recreation sites, resulting in a high, unavoidable, regional impact beyond neighboring receptors. The long term impact would occur throughout the life of the Project.
- **Recreation – Public Health and Safety:** The comprehensive Project's potential to affect the health and safety of paragliders and hang gliders would result in a regional, medium, unavoidable long term impact for the life of the Project.

4.12.2.2 Impacts during Operation

The Project's operation stage would result in direct and indirect adverse impacts on recreation resources. Impacts would be long term during the Project's operational life of up to 35 years (Horse Heaven Wind Farm, LLC 2022).

Transportation-related impacts are not expected for existing recreational uses during operation of any of the Project components, due to the small operations team, and are therefore not analyzed for this stage. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during operation.

Impacts related to the operation stage of the two turbine options and other components are described below. Impacts of the operation of the overall Project are described last.

Turbine Option 1

The Project's impacts on recreation in the study area during the operation stage under Turbine Option 1 would be measurable.

Long term visual impacts on recreation resources would be measurable during the operation stage of Turbine Option 1. Areas identified as having potential visibility of large numbers of the Project's proposed turbines include:

- The Horse Heaven Hills to the west and southwest of the Lease Boundary
- Areas on the southwest-facing slopes of the Rattlesnake uplift formation:
  - Red Mountains

  - Candy Mountains
  - Badger Mountains
- Areas ranging from approximately 8 to 10 miles to the north, northeast, and east of the Lease Boundary, including parts of the Tri-Cities urbanized area and agricultural areas beyond (SWCA 2022).

Recreational areas within or adjacent to the Lease Boundary with foreground views are likely to have more views of the turbines given their proximity to the Project's infrastructure. While an analysis could not be completed for all recreational sites due to a lack of key observation points, it is expected that there would be a high visual impact on the Badger Mountain Centennial Preserve, Chandler Butte, and the McBee Trailhead. A medium visual impact could be experienced by recreationists at the McNary National Wildlife Refuge. The turbine towers would be painted off-white with a non-reflective coating, and aircraft-activated aviation lighting would be mounted on the turbine nacelles, in accordance with Federal Aviation Administration and Washington State regulations. Impacts from light would be low, while impacts from glare would be negligible during the operation of the Project. The magnitude of potential impacts related to each recreational site during the operation of turbines within the study area is summarized in **Table 4.12-3**. Visual effects resulting from installation of the turbines, including light and glare, are addressed in more detail in Section 4.10.

Operational noise levels would be similar to existing noise levels at most recreational sites due to the distances between the Project and most areas used for recreation. Operational noise may be experienced by recreational users at the recreation areas that are closest to the Lease Boundary, such as Johnson Butte and the Horse Heaven Cemetery. The magnitude of potential impacts related to each recreational site during the operation of turbines within the study area is summarized in **Table 4.12-3**. Section 4.11 further describes the impacts and mitigation related to noise.

Operation of the Project would impact existing recreational paragliding and hang gliding activity based on launch and landing locations from example flight paths (Horse Heaven Wind Farm, LLC 2022; Paragliding Forum n.d.). The Project would pose a risk to paragliders and hang gliders who use the 20 launch sites known within the study area. The main risks would be:

- The direct loss of safe landing space in the event of an in-flight emergency requiring an unanticipated landing in an area containing turbines and supporting infrastructure
- Collision with a turbine or supporting infrastructure if a pilot loses the ability to steer mid-flight

Light aviation traffic in the vicinity of a wind farm could also be impacted by wake zones created by the wind turbines' turbulence while operating. At wind speeds above approximately 7 miles per hour, caution is required if the flight path is within approximately 3,000 feet downwind of the turbines.

Activities during operation under Turbine Option 1 would result in impacts on recreation resources as follows:

- **Recreation – Use:** Operation under Turbine Option 1 would limit recreational activities on public land in areas near construction, resulting in a low, long term, unavoidable impact on local recreation use. Construction under Turbine Option 1 would have indirect visual impacts that would impact recreation users. Specifically, Turbine Option 1 does not align with Parks, Recreation, Open Space, and Historic Preservation Goal 3, which works to conserve visually prominent, naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the ice age floods.

- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by operation under Turbine Option 1 could occur at nearby recreation sites, resulting in a regional, long term, low, unavoidable impact on recreational sites beyond neighboring receptors.
- **Recreation – Public Health and Safety:** Operation under Turbine Option 1 would have the potential to affect the health and safety of paragliders and hang gliders regionally, resulting in a medium, unavoidable, long term impact for the life of the Project.

Turbine Option 2

Impacts on recreation during the Project's operation stage under Turbine Option 2 would be similar to those described for Turbine Option 1 and would be more distinct visually due to the increased height of the turbines. Impacts during operation under Turbine Option 2 are summarized below:

- **Recreation – Use:** Operation under Turbine Option 2 would limit recreational activities that occur on public land in areas near construction, resulting in a low, long term, and unavoidable impact on local recreation use. The operation of Turbine Option 2 would have indirect visual impacts that would impact recreation users. Specifically, Turbine Option 2 does not align with Parks, Recreation, Open Space, and Historic Preservation Goal 3 which works to conserve visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the ice age floods.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by operation under Turbine Option 2 could occur at nearby recreation sites, resulting in a regional long term, low, and unavoidable impact on recreational sites beyond neighboring receptors.
- **Recreation – Public Health and Safety:** Operation under Turbine Option 2 would have the potential to affect the health and safety of paragliders and hang gliders regionally, resulting in a medium, unavoidable, long term impact for the life of the Project.

Solar Arrays

The three proposed solar arrays would have common impacts on recreation during the Project's operation stage. The impacts of the proposed solar arrays on recreation during this stage would be measurable and would affect recreational opportunities within the study area.

The County Well Road, Sellards Road, and Bofer Canyon solar arrays would be potentially visible from approximately 45 percent, 51 percent, and 31 percent, respectively, of the area located within 5 miles of the Project (Horse Heaven Wind Farm, LLC 2022). The strong horizontal lines of the solar arrays would contrast with the organic forms and colors of the existing landform and vegetation. Section 4.10 describes the impacts on visual resources caused by operation of the solar arrays.

During operation of the solar arrays, noise would be associated with the transformers and inverters that support the solar array infrastructure. Electronic noise from inverters can be audible, but it is often reduced by a combination of shielding, noise cancellation, filtering, and noise suppression. Impacts from noise during operation of the solar arrays are not expected to affect recreational sites. See Section 4.11 for a detailed analysis of noise generated by installation of the turbines.

Operation of the solar arrays would pose a risk to paragliders and hang gliders. The main risk would be losing safe landing space in the event of an in-flight emergency requiring an unanticipated landing in an area containing solar arrays and supporting infrastructure. While some launch sites are seemingly distant from the solar arrays,

flight records of over 60 miles have been recorded in the online paragliding database, and flight paths may traverse the Lease Boundary (Paragliding Forum n.d.).

The closest launch site to the proposed solar array located near Sellards Road is the McBee Road launch site, approximately 1 mile west of the solar siting area boundary. The closest launch site to the proposed solar array near County Well Road is also the McBee Road launch site, approximately 5 miles northwest of the solar siting area boundary. The closest launch site to the proposed solar array near the Bofer Canyon Substation is Jump Off Joe, approximately 2.7 miles northeast of the solar siting area boundary. Extra precautions would have to be taken by pilots if they needed to land near the solar fields.

Operation of the Sellards Solar Field would restrict access for recreationists. Sellards Solar Field would require a fence around the facility, which would include a parcel of DNR-administered land.

Activities during operation of the solar arrays would result in impacts on recreation resources:

- **Recreation – Use:** The Project's potential to affect access to public land resulting from the operation of the Sellards Solar Field would result in a limited, unavoidable, high, and long term impact.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources produced by the operation of the solar arrays could occur at recreation sites, resulting in a low, unavoidable impact on recreational sites regionally. The long term impacts would occur for the life of the Project.
- **Recreation – Public Health and Safety:** Operation of the solar arrays would have the potential to affect the health and safety of paragliders and hang gliders regionally, resulting in a medium, unavoidable, long term impact for the life of the Project.

Battery Energy Storage Systems

The three proposed BESS would have common impacts during the operation stage. The impacts of the proposed BESS on recreation during the operation stage would be measurable and would impact recreational opportunities within the study area.

Visual impacts on recreation resources would be negligible due to the BESS' low profile and features in the area being taller than the BESS. Impacts from light and glare would be negligible. Visual impacts resulting from the operation of the BESS are addressed in more detail in Section 4.10.

Noise from BESS is typically associated with battery storage container ground-level cooling equipment and is not expected to impact recreational sites.

Operation of the BESS is not expected to pose a risk to paragliders and hang gliders. The proposed disturbance footprint for the BESS is negligible compared to other components, and paragliders and hang gliders are expected to be able to easily avoid landing within the fenced area of the BESS.

Operation of the BESS would result in negligible, long term, unlikely, local impacts on recreation resource use, experience, and public health and safety.

Substations

The five proposed substations would have common impacts during the operation stage. The impacts of the substations on recreation during the operation stage would be measurable and would affect recreational opportunities within the study area.

The substations and perimeter fencing would introduce vertical and geometric structures into the landscape. These features would contrast with the surrounding natural environment and would be visible from nearby recreation sites. Impacts from light and glare would be negligible. Visual impacts resulting from the operation of the substations are addressed in Section 4.10.

Operational noise levels would be similar to existing noise levels at most recreation sites due to the distances between the substations and most areas used for recreation. The primary ongoing noise sources at substations are the transformers, which generate sound generally described as a low humming. Circuit-breaker operations may also cause audible noise. Operational noise may be experienced by recreational users at the recreation areas that are closest to the Lease Boundary, such as Johnson Butte and the Horse Heaven Cemetery. Noise impacts resulting from operation of the substations are addressed in Section 4.11.

Operation of the substations is not expected to pose a risk to paragliders and hang gliders. The proposed disturbance footprint for the substations is negligible compared to other components, and paragliders and hang gliders are expected to be able to easily avoid landing within the fenced area of the substations.

Operation of the substations would have a small degree of impact on recreation sites and recreationists. Operation and maintenance activities are considered long term. Impacts on recreationists may occur beyond neighboring receptors. Activities during operation of the substations would result in negligible, long term, unlikely, local impacts on recreation resource use, experience, and public health and safety.

Comprehensive Project

The operation of the combined components would result in impacts on the safety of recreationists who paraglide and hang glide in the study area. Impacts related to visual resources could occur at recreation sites that give visitors potential unobstructed views of the Project's infrastructure. Operation of the Sellards Solar Field would remove access to an entire parcel of DNR-administered land.

The Project's potential to affect the health and safety of recreationists using the area for paragliding and hang gliding and limit access to recreation resources results in a medium impact. Operation of the comprehensive Project is long term. Impacts are unavoidable due to recreationists' views, safety, and activities being affected. Impacts on recreationists could occur beyond neighboring receptors. Activities during operation under the comprehensive Project would result in medium, long term, unavoidable, regional impacts on recreation resources, as follows:

- **Recreation – Use:** The comprehensive Project's potential to affect the use of public land near the Project during operation of the turbines and access to public land resulting from the operation of the Sellards Solar Field would result in a local, unavoidable, high, long term impact.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by the operation of the comprehensive Project could occur at nearby recreation sites, resulting in a regional, unavoidable, low, long term impact for the life of the Project.
- **Recreation – Public Health and Safety:** The comprehensive Project's potential to affect the health and safety of paragliders and hang gliders would result in a regional, medium, and unavoidable, long term impact for the life of the Project.

4.12.2.3 Impacts during Decommissioning

The Project's decommissioning stage may result in impacts on recreation.

It is anticipated that the Applicant would either repower the facility or decommission the Project following the operational life of the facility.

Decommissioning activities could limit access to recreational facilities or conflict with recreational uses. Decommissioning would be performed in accordance with the Washington Energy Facility Site Evaluation Council's (EFSEC) mandates and prior Site Certification Agreements and would include the dismantling and removing of aboveground components, including turbines, solar arrays, substations, BESS, and supporting infrastructure as well as belowground components to a depth of three feet below the surface.

Impacts related to construction of the two turbine options and other components are described below and are similar to those described for the construction stage of the Project. Impacts of the decommissioning of the comprehensive Project are described last.

Turbine Option 1

Impacts on recreation during the Project's decommissioning stage under Turbine Option 1 would be measurable and would affect recreational opportunities within the study area.

During decommissioning, workers may seek accommodation in RV parks or campgrounds. Existing limits on the length of stay in public camping areas would minimize any potential impacts on park users. Benton County may experience small increases in costs for park use and recreation due to related temporary increases in population.

Impacts from light would be negligible, while impacts from glare would be low during decommissioning of the Project. Visual effects resulting from the decommissioning of the turbines, including light and glare, are addressed in more detail in Section 4.10.

Noise related to decommissioning would be temporary and would be noticeable at recreation sites that are close to the Lease Boundary. Noise could affect the recreational experience of those engaged in the use of multi-use trails, hunting on public lands, fishing, or camping nearby. See Section 4.11 for a detailed analysis of noise generated during the decommissioning of turbines.

During Project decommissioning, traffic impacts would be similar to those evaluated for construction. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during decommissioning of the Project.

Decommissioning of turbines would reduce the risk to paragliders and hang gliders posed by both construction and operation of the Project; however, it is expected that the risk would remain until all turbines were removed. The main risks posed during decommissioning would be the loss of safe landing space in the event of an in-flight emergency requiring an unanticipated landing in an area containing the remaining infrastructure or turbines and supporting infrastructure being decommissioned with cranes.

Activities during decommissioning of the turbines would result in impacts on recreation resources, as follows:

- **Recreation – Use:** Decommissioning under Turbine Option 1 would limit recreational activities that occur on public land in areas near construction, resulting in a low, short term, and unavoidable impact on local recreation use.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by decommissioning under Turbine Option 1 could occur at nearby recreation sites, resulting in a short term, high, regional and unavoidable impact on recreational sites beyond neighboring receptors.

- **Recreation – Public Health and Safety:** Decommissioning under Turbine Option 1 would result in a regional, medium, unavoidable, short term impact mostly due to the impact on the public health and safety of paragliders and hang gliders.

Turbine Option 2

Impacts on recreation during the Project's decommissioning stage under Turbine Option 2 would be similar to those listed for Turbine Option 1, as follows:

- **Recreation – Use:** Decommissioning under Turbine Option 2 would limit recreational activities that occur on public land in areas near construction, resulting in a low, short term, and unavoidable impact on local recreation use.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by decommissioning under Turbine Option 2 could occur at nearby recreation sites, resulting in a short term, high, regional, and unavoidable impact on recreational sites beyond neighboring receptors.
- **Recreation – Public Health and Safety** Decommissioning under Turbine Option 2 would result in a regional, medium, unavoidable, short term impact mostly due to the impact on the public health and safety of paragliders and hang gliders.

Solar Arrays

The three proposed solar arrays would have common, measurable impacts on recreation during the decommissioning stage.

Depending on the location of a specific recreational resource, views of decommissioning activities may be fully or partially obstructed or viewers may have more wide-open views. Impacts from light and glare would be negligible. Visual effects resulting from decommissioning of the solar arrays are addressed in more detail in Section 4.10.

Noise related to decommissioning would be temporary and may be noticeable at recreation sites that are close to the Lease Boundary. Noise could affect the recreational experience of those engaged in hunting on public lands, fishing, or camping nearby. See Section 4.11 for a detailed analysis of noise generated during the decommissioning of the solar arrays.

Transportation-related impacts may occur on public roads used for existing recreational purposes during the decommissioning of solar arrays due to the transportation of materials. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during decommissioning.

Decommissioning of solar arrays would reduce the risk to paragliders and hang gliders posed by both construction and operation of the solar arrays, but the risk would remain until all solar arrays are removed. The main risks posed during decommissioning would be the loss of safe landing space in the event of an in-flight emergency requiring an unanticipated landing in an area containing remaining infrastructure or solar arrays and supporting infrastructure being decommissioned.

Activities during decommissioning of the solar arrays would result in impacts on recreation resources, as follows:

- **Recreation – Use:** The Project's potential to affect access to public land resulting from the decommissioning of the Sellards Solar Field would result in a limited, unavoidable, high, and short term impact.

- **Recreation – Recreational Experience:** Indirect impacts related to visual resources produced by the decommissioning of the solar arrays could occur at recreation sites resulting in a high and unavoidable impact on recreational sites regionally. Impacts would be for the duration of decommissioning, or short term.
- **Recreation – Public Health and Safety:** Decommissioning of the solar arrays would have the potential to affect the health and safety of paragliders and hang gliders resulting in a regional, medium, unavoidable, short term impact for the duration of decommissioning of the solar arrays.

Battery Energy Storage Systems

The three locations proposed for the construction of up to two BESS would have common, measurable impacts during the decommissioning stage.

Depending on the location of a specific recreational resource, views of decommissioning activities may be fully or partially obstructed or viewers may have more wide-open views. Impacts from light and glare would be negligible. Visual effects resulting from decommissioning of the BESS are addressed in more detail in Section 4.10.

Noise related to decommissioning would be temporary and may be noticeable at nearby recreation sites. Noise could affect the recreational experience of those engaged in hunting on public lands, fishing, or camping nearby. See Section 4.11 for a detailed analysis of noise generated during the decommissioning of the BESS.

No transportation-related impacts are expected for existing recreational uses during the decommissioning of BESS. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during operation.

The decommissioning of the BESS is not expected to pose a risk to paragliders and hang gliders. The proposed disturbance footprint for the BESS is negligible compared to other components, and paragliders and hang gliders are expected to be able to easily avoid landing within the fenced area of the BESS during decommissioning.

Decommissioning activities for BESS would result in negligible, temporary, feasible, local impacts on recreation resource use, experience, and public health and safety.

Substations

The five proposed substations would have common, measurable impacts on recreation during the decommissioning stage.

Depending on the location of a specific recreational resource, views of decommissioning activities may be fully or partially obstructed or viewers may have more wide-open views. Impacts from light and glare would be negligible. Visual effects resulting from decommissioning of the substations are addressed in more detail in Section 4.10.

Noise related to decommissioning would be temporary and may be noticeable at nearby recreation sites. Noise could affect the recreational experience of those engaged in hunting on public lands, fishing, or camping nearby. See Section 4.11 for a detailed analysis of noise generated during decommissioning of substations.

No transportation-related impacts are expected for existing recreational uses during decommissioning of substations since no road construction is required and decommissioning activities are unlikely to cause traffic delays. See Section 4.14 for a detailed analysis of traffic impacts and mitigation during operation.

The decommissioning of the substations is not expected to pose a risk to paragliders and hang gliders. The proposed disturbance footprint for the substations is negligible compared to other components, and paragliders

and hang gliders are expected to be able to easily avoid landing within the fenced area of the substations during decommissioning.

Decommissioning activities for substations would result in negligible, temporary, feasible, local impacts on recreation resource use, experience, and public health and safety.

Comprehensive Project

The decommissioning of the Project's components would result in impacts on recreationists who paraglide and hang glide in the study area. Additionally, impacts related to visual resources and noise could occur at recreation sites. The decommissioning of the Project's components would also reduce the risk associated with construction and operation and maintenance stages.

Activities during the decommissioning of all components of the Project would result in impacts on recreation resources, as follows:

- **Recreation – Use:** The comprehensive Project's potential to affect the use of public land near the Project during the decommissioning of the turbines and access to public land resulting from the decommissioning of the Sellards Solar Field would result in a local, unavoidable, high, short term impact.
- **Recreation – Recreational Experience:** Indirect impacts related to visual resources and noise produced by decommissioning of the comprehensive Project could occur at nearby recreation sites, resulting in a regional, unavoidable, high, short term impact.
- **Recreation – Public Health and Safety:** The comprehensive Project's potential to affect the health and safety of paragliders and hang gliders would result in a regional, medium, short term, and unavoidable impact for the duration of decommissioning.

4.12.2.4 Summary of Impacts on Recreation Resources

The magnitude of impacts related to each recreational site within the study area is summarized in **Table 4.12-3**. The magnitude of impacts related to each recreational activity is summarized in **Table 4.12-4**.

Table 4.12-3: Summary of Impacts on Recreation Resources within the Study Area

Recreation Resource Name[a]	Recreation Activity Available[b]	Approximate Distance from Project (miles)[c]	Magnitude Impact of Turbine Option 1 and Turbine Option 2 (Summarized from Magnitude Ratings Described in Sections 4.10, 4.11, and 4.14)		
			Visual Impacts During Operation[d]	Noise and Vibration Impacts During Operation[e]	Transportation Impacts During Construction[f]
County and Regional Resources and Activities					
Badger Mountain Centennial Preserve		4	High	Negligible	Low
Boardman Parks and Recreation District		20.1	N/A	Negligible	Negligible
Candy Mountain Preserve		5	N/A	Negligible	Low
Horn Rapids Park		9	N/A	Negligible	Negligible
Horse Heaven Cemetery		0	N/A	Medium	Medium
Horse Heaven Vista		7	N/A	Negligible	Negligible
Hover Park		1.5	N/A	Low	Low
Rattlesnake Mountain Shooting Facility		8	N/A	Negligible	Negligible
Two Rivers Park		4.5	N/A	Negligible	Low
Vista Park		5	N/A	Negligible	Low
Wallula Gap Preserve		3	N/A	Low	Medium
State of Washington and Oregon Resources and Activities					
Chandler Butte		1.8	High	Low	Medium
Coyote Springs Wildlife Area		21	N/A	Negligible	Negligible
Goose Hill Butte		2	N/A	Low	Medium
Hat Rock State Park		8.1	N/A	Negligible	Negligible
Irrigon Wildlife Area		11	N/A	Negligible	Negligible
Johnson Butte		0	N/A	Medium	Medium
Jump Off Joe Butte		1.5	N/A	Low	Medium
Sacajawea Historical State Park		5.2	N/A	Negligible	Low
Federal Resources and Activities					
Charbonneau Park		12.5	N/A	Negligible	Negligible
Cold Springs National Wildlife Refuge		11.3	N/A	Negligible	Negligible
Crow Butte Park		22.2	N/A	Negligible	Negligible
Fishhook Park		18.5	N/A	Negligible	Negligible
Hanford Reach National Monument		14.3	N/A	Negligible	Negligible
Hood Park		6.5	N/A	Negligible	Low
Irrigon Fish Hatchery		13.9	N/A	Negligible	Negligible
Juniper Dunes OHV Area / ACEC Wilderness Area		15.3	N/A	Negligible	Negligible
McBee Trailhead (Horse Heaven Hills)		1.5	High	Low	Medium
McNary National Wildlife Refuge		2.7	Medium	Low	Low
Saddle Mountain National Wildlife Refuge		8.7	N/A	Negligible	Negligible
Sand Station Recreation Area (Lake Wallula)		8	N/A	Negligible	Negligible
Sunnyside Wildlife Management Area		15	N/A	Negligible	Negligible
Umatilla National Wildlife Refuge		11.4	N/A	Negligible	Negligible
Washington Farm Service Agency Tracts		24.7	N/A	Negligible	Negligible

Notes:

(a) There are 208 small local parks found within the study area. These various parks are shown in Figures 3.12-1 through 3.12-4 but are not listed individually in this table.

(b) = Biking; = Boating; = Camping; = Fishing; = Golfing; = Hiking; = Hunting on public lands; = OHV Area; = Paragliding; = Playground/Recreational Equipment; = Scenic View or Visual Attraction including Sites with Historical Significance; = Shooting Range; = Swimming; = Wildlife Viewing and Bird Watching

(c) Horse Heaven Wind Farm, LLC 2022

(d) Impacts related to visual setting (including light and glare) are addressed in Section 4.10. Magnitude is provided for what was analyzed during operation.

(e) Impacts related to noise and vibration are addressed in Section 4.11. Magnitude is provided for what was analyzed during operation.

(f) Impacts related to traffic are addressed in Section 4.14. Magnitude is provided for what was analyzed during construction.

ACEC = Area of Critical Environmental Concern; BLM = Bureau of Land Management; Const. = Construction; Decom = Decommissioning; N/A – Not Analyzed due to lack of key observation point; NPS = National Park Service; O&M = Operation and Maintenance; OHV = off-highway vehicle

Table 4.12-4: Impacts from Turbine Option 1 and Turbine Option 2 on Recreation Resources within the Study Area by Resource Activity

Recreation Resource Type	Magnitude Impact of Turbine Option 1 and Turbine Option 2 (Summarized from Magnitude Ratings Described in Sections 4.10, 4.11, and 4.14)		
	Visual Impacts During Operation[(a)]	Noise Impacts During Operation[(b)]	Transportation Impacts During Construction[(c)]
Biking	High	Low	Medium
Boating	N/A	Negligible	Low
Camping	N/A	Negligible	Low
Fishing	N/A	Low	Low
Golfing	N/A	Negligible	Low
Hiking	High	Medium	Medium
Hunting on Public Lands	Medium	Low	Low
OHV	N/A	Negligible	Negligible
Paragliding	High	Low	Medium
Parks with Playground/Recreational Equipment	N/A	Negligible	Low
Scenic View or Visual Attraction including Sites with Historical Significance	High	Medium	Medium
Shooting Range	N/A	Negligible	Negligible
Wildlife Viewing and Bird Watching	High	Low	Low

Notes:
(a) Impacts related to visual setting (including light and glare) are addressed in Section 4.10. Magnitude is provided for what was analyzed during operation.
(b) Impacts related to noise and vibration are addressed in Section 4.11. Magnitude is provided for what was analyzed during operation.
(c) Impacts related to traffic are addressed in Section 4.14. Magnitude is provided for what was analyzed during construction.
N/A – Not Analyzed due to lack of key observation point; OHV = off-highway vehicle

4.12.2.5 Recommended Mitigation Measures

This section describes measures that would reduce or compensate for impacts related to recreation from construction, operation, and decommissioning of the Project. It is important to note that the full suite of mitigation measures and monitoring actions would not be known until many or most of the required permits have been issued, which often contain required measures intended to avoid or reduce environmental effects. The following measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action:

R-1[57]**:** The Certificate Holder would coordinate with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within the Lease Boundary (e.g., multi-use trails).

Rationale: To mitigate the potential loss of recreational activities due to the Project.

R-2: The Certificate Holder would provide a minimum of five informational boards approved by DNR and EFSEC at viewpoints within the Lease Boundary and/or in the surrounding communities associated with

[57] R-: Identifier of numbered mitigation item for Recreation

scenic areas of interest. The construction of the informational boards would be completed within five years of the beginning of construction.

Rationale: To mitigate the loss of uninterrupted views of scenic viewpoints and provide information to the public regarding the Project, the Project's expected years of operation and the reclamation of the Project. Additionally, photographs of the viewshed prior to the construction of the Project should be displayed, in color, on the informational boards.

R-3: The Certificate Holder would coordinate with local and regional (when appropriate) recreation groups (e.g., the Northwest Paragliding Club, the Tri-City Bicycle Club) to develop and maintain an adaptive safety management plan, prior to construction and approved by EFSEC, to continue access to recreation activities in the Project area while keeping recreation enthusiasts safe. This plan should identify potential hazards within the Project Area (e.g., construction on or near common bicycle paths, Project-created no fly zones for recreation activities, etc.) and provide opportunities to identify or improve other similar recreation use areas to offset any recreation removed from the Project area as a result of the Project. Specific to paragliding, the Certificate Holder would perform outreach to other regional paragliding entities to share the safety management plan to ensure that recreationists are aware of the limitations the Project creates for safe landing and safe air space.

Rationale: To mitigate the loss of safe use for recreation enthusiasts.

4.12.2.6 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and includes the undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[58]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remains. The additional Applicant commitments identified above do not change the impact ratings previously provided for recreation in the Draft EIS, and the impact ratings remain the same.

4.12.2.7 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn, depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

[58] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

This EIS weighs the potential impacts on recreation that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact, as listed in **Tables 4.12-5a, 4.12-5b, and 4.12-5c**. As shown in the impact summary tables for recreation resources, EFSEC has determined that significant unavoidable adverse impacts would occur during the operation stage.

Table 4.12-5a: Summary of Potential Impacts on Recreation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Recreation – Use	Turbine Option 1 Turbine Option 2	Installation of the turbines would limit recreational activities that occur on public land in areas near construction, as well as impede cyclists' use of established routes during the transportation of equipment and materials.	Medium	Short Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails)	None identified
Recreation – Use	Solar Arrays	Construction of the Sellards Solar Field would restrict access to a parcel of DNR-administered land within the Lease Boundary resulting in a high impact.	High	Long Term	Unavoidable	Limited	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails)	None identified
Recreation – Use	BESS Substations	Construction of the BESS and Substations would cause a negligible impact on recreationists.	Negligible	Temporary	Feasible	Local	No mitigation identified	None identified
Recreation – Use	**Comprehensive Project**	Construction of the comprehensive Project would result in a high impact due to the restriction of access to public land and recreational activities that occur on public land within the Project's construction area. The impact would be long term for the duration of the life of the Project, unavoidable, and local.	High	Long Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails) **R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Recreation – Recreational Experience	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Indirect impacts related to visual resources and noise could occur at recreation sites.	High	Long Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest.	None identified
Recreation – Recreational Experience	BESS Substations	Construction of the BESS and Substations would cause a negligible impact on recreationists.	Negligible	Temporary	Feasible	Local	No mitigation identified	None identified
Recreation – Public Health and Safety	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	The Project's potential to affect the health and safety of recreationists using the area for paragliding, hang gliding, or biking would result in a medium impact.	Medium	Long Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified

Table 4.12-5a: Summary of Potential Impacts on Recreation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Recreation – Public Health and Safety	BESS Substations	Construction of the BESS and Substations would cause a negligible impact on recreationists.	Negligible	Temporary	Feasible	Local	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; DNR = Washington Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.12-5b: Summary of Potential Impacts on Recreation during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Recreation – Use	Turbine Option 1 Turbine Option 2	Turbines would limit recreational activities (i.e., paragliding) that occur on public land near areas of operation.	Low	Long Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails)	None identified
Recreation – Use	Solar Arrays	Operation of the Sellards Solar Field would restrict access to a parcel of DNR-administered land within the Lease Boundary.	High	Long Term	Unavoidable	Limited	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails)	None identified
Recreation – Use	BESS Substations	Operation of the BESS and substations would cause a negligible impact on recreationists.	Negligible	Long Term	Unlikely	Local	No mitigation identified	None identified
Recreation – Use	**Comprehensive Project**	Operation of the comprehensive Project would result in a high impact due to the restriction of access to public land and recreational activities that occur on public land near the Project. The impact would be long term for the duration of the life of the Project, unavoidable, and local.	High	Long Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails) **R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Recreation – Recreational Experience	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Impacts on noise receptors would be limited, while visual impacts would occur regionally.	Low	Long Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest	None identified
Recreation – Recreational Experience	BESS Substations	Operation of the BESS and substations would cause a negligible impact on recreationists.	Negligible	Long Term	Unlikely	Local	No mitigation identified	None identified
Recreation – Public Health and Safety	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	The Project's potential to affect the health and safety of recreationists using the area for paragliding and hang gliding would results in a medium impact during the life of the Project. Impacts on recreationists would occur beyond neighboring receptors.	Medium	Long Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	Significant for paragliding and hang gliding public health and safety

Table 4.12-5b: Summary of Potential Impacts on Recreation during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Recreation – Public Health and Safety	BESS Substations	Operation of the BESS and substations would cause a negligible impact on recreationists.	Negligible	Long Term	Unlikely	Local	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; DNR = Washington Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.12-5c: Summary of Potential Impacts on Recreation during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Recreation – Use	Turbine Option 1 Turbine Option 2	Decommissioning would result in impacts on recreationists who use the Project's study area for recreational activities. Paragliders, hang gliders, and cyclists would be affected by the decommissioning of the Project.	Low	Short Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails) **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Recreation – Use	Solar Arrays	Decommissioning of the Sellards Solar Field would restrict access to a parcel of DNR-administered land within the Lease Boundary, resulting in a high impact.	High	Short Term	Unavoidable	Limited	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails)	None identified
Recreation – Use	BESS Substations	Decommissioning of the BESS and substations would cause a negligible impact on recreationists.	Negligible	Temporary	Feasible	Local	No mitigation identified	None identified
Recreation – Use	**Comprehensive Project**	Decommissioning of the comprehensive Project would result in a high impact due to the restriction of access to public land and recreational activities that occur on public land near the Project. The impact would be short term for the duration of decommissioning, unavoidable, and local.	High	Short Term	Unavoidable	Local	**R-1:** Work with DNR and Benton County to identify new recreational activities and/or improve existing recreational activities within Lease Boundary (e.g., multi-use trails) **R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest **R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified
Recreation – Recreational Experience	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Indirect impacts related to visual resources and noise could occur at recreation sites. Impacts on noise receptors would occur locally, while visual impacts would occur at a regional spatial extent.	High	Short Term	Unavoidable	Regional	**R-2:** Provide informational boards, as approved by DNR and EFSEC, at viewpoints associated with scenic areas of interest	None identified
Recreation – Recreational Experience	BESS Substations	Construction of the BESS and substations would cause a negligible impact on recreationists.	Negligible	Temporary	Feasible	Local	No mitigation identified	None identified
Recreation – Public Health and Safety	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	The Project's potential to affect the health and safety of recreationists using the area for paragliding, hang gliding, or biking would result in a medium impact.	Medium	Short Term	Unavoidable	Regional	**R-3:** Work with the local and regional clubs to provide and maintain a plan to keep recreationalists safe	None identified

Table 4.12-5c: Summary of Potential Impacts on Recreation during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: • Negligible • Low • Medium • High	Duration of Impact: • Temporary • Short Term • Long Term • Constant	Likelihood of Impact: • Unlikely • Feasible • Probable • Unavoidable	Spatial Extent or Setting of Impact: • Limited • Confined • Local • Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Recreation – Public Health and Safety	BESS Substations	Construction of the BESS and substations would cause a negligible impact on recreationists.	Negligible	Temporary	Feasible	Local	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; DNR = Washington Department of Natural Resources; EFSEC = Washington Energy Facility Site Evaluation Council

4.12.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related recreation from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.13 Public Health and Safety

This section describes potential impacts on public health and safety from the proposed Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Agencies and medical facilities providing public health and safety services (e.g., law enforcement, fire protection, and medical emergency services) within the vicinity of the Project Lease Boundary are identified in Section 3.13. As referenced in Section 3.13, Benton County Emergency Services is made up of two divisions: the Southeast Communications Center and Benton County Emergency Management. The two divisions assist emergency responders and promote community safety by coordinating incident response. Section 4.12 Recreation presents an analysis of recreational safety within the Project vicinity and Lease Boundary.

Sections 3.11 and 4.11 of this Environmental Impact Statement (EIS) describe existing conditions and potential impacts related to noise. Radiation levels are not applicable to the Project or the No Action Alternative and are therefore not discussed in this EIS.

Security measures to limit public access to Project components during construction, operation, and decommissioning are described in Section 2.19 of the Application for Site Certification (ASC) and include temporary (safety) fencing, permanent fencing, warning signs, and locks on equipment and Project facilities (Horse Heaven Wind Farm, LLC 2022). The Washington Energy Facility Site Evaluation Council (EFSEC) considers these measures sufficient to prevent injury to the public from the Project and therefore focuses the impact assessment in Sections 4.13.2 and 4.13.3 on risks and impacts associated with fires, explosions, or potential releases of hazardous materials to the environment within the vicinity of the Project Lease Boundary.

Section 3.13 describes the network of available public services, including emergency management, law enforcement, fire protection, and health services (hospitals and health care facilities) that would respond to public health and safety emergencies. The available systems are extensive and could respond to fires, explosions, or potential releases of hazardous materials to the environment within the vicinity of the Project Lease Boundary (unless noted otherwise in this section).

4.13.1 Method of Analysis

In accordance with the Washington State Environmental Policy Act (SEPA), this EIS weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors when determining the significance of identified potential impacts (WAC 197-11-330 and WAC 197-11-794). The impact rating is summarized in **Table 4.13-1**.

Table 4.13-1: Impact Rating Table for Public Health and Safety from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Table 4.13-2 defines the qualitative framework used herein to rank the magnitude of impact and presents impact magnitude with respect to public health and safety services.

Table 4.13-2: Criteria for Assessing Magnitude of Impacts on Public Health and Safety

Magnitude of Impacts	Description
Negligible	**Smoke and haze:** No risk of smoke or haze from accidental fire. **Hazardous materials release:** A release of hazardous materials would not be possible. **Emergency services:** Response times of emergency services would remain unchanged.
Low	**Smoke and haze:** Smoke and haze may occur, but any accidental fire would be easily contained and not pose a health or safety concern. **Hazardous materials release:** Hazardous materials may be used or stored on site, but in small quantities that could be easily contained. **Emergency services:** Emergency response times would not be altered to a status that would have an effect on community health and safety or on-site personnel.

Table 4.13-2: Criteria for Assessing Magnitude of Impacts on Public Health and Safety

Magnitude of Impacts	Description
Medium	**Smoke and haze:** Smoke and haze generated by accidental fires could be measurably increased and may affect public health. Moderate amounts of combustible materials may be used or stored on site. **Hazardous materials release:** Hazardous materials may be used or stored on site, in quantities that could pose a health risk if a release were to occur. **Emergency services:** Emergency response times could be altered to a level that would affect the local community or safety of on-site personnel.
High	**Smoke and haze:** Smoke and haze from accidental fire would measurably affect public health. Large amounts of combustible materials may be used or stored on site. **Hazardous materials release:** Hazardous materials would be used or stored on site, in quantities that would pose a severe health risk if a release were to occur. **Emergency services:** Emergency response times could be altered to a level that would severely affect the local community or safety of on-site personnel

Applicant Commitments

Horse Heaven Wind Farm, LLC (Applicant) has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on public health and safety are discussed in Section 2.1.3 of the EIS and 4.1.2 of the 2022 ASC and summarized below.

The Applicant and its contractors would comply with applicable federal, state, and local health and safety standards, including:

- Occupational Safety and Health Act of 2000
- Applicable Standards from WAC 296-155, Safety Standards for Construction Work
- International Building Code
- National Fire Protection Association Standards
- National Institute for Occupational Safety and Health
- American Society of Mechanical Engineers, design standards
- American National Standards Institute, design standards
- National Electric Safety Code
- American Concrete Institute Standards
- Institute of Electrical and Electronics Engineering Guide for Substation Fire Protection (979-2012)
- Unified Facilities Criteria (UFC) for Fire Protection Engineering for Facilities (UFC 3-600-01)

During construction of the Project, trees and vegetation that pose a hazard to the collector lines may be topped or cleared[59] from the right-of-way. During operation and maintenance, vegetation that is overgrown and could pose a hazard to the transmission line would be topped or cleared on an as-needed basis. battery energy storage systems (BESS) and diesel-powered generators would include fire suppression measures. Appropriate coordination with local emergency personnel would be conducted. Precautionary measures would be taken during construction to reduce fire risk. Construction equipment would be monitored where activities may present safety issues.

The Applicant has identified multiple actions to prevent or respond to spills (Section 2.10 of the 2022 ASC) (Horse Heaven Wind Farm, LLC 2022).

The Applicant would coordinate with local emergency services personnel (Section 3.13) and provide training to them where necessary. The Applicant would prepare and submit the following emergency plans to EFSEC for approval prior to construction (unless otherwise noted):

- Emergency Action Plan
- Safety Manual
- Spill Prevention, Control, and Countermeasures (SPCC) Plan (Construction)
- SPCC Plan (Operations, to be submitted prior to operations)
- Stormwater Pollution Prevention Plan (Construction)

The construction contractor would be responsible for implementing the applicable plans during construction.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.13.2.5, Post-Adjudication Applicant Commitments.

4.13.2 Impacts of the Project

4.13.2.1 Impacts during Construction

The Project's construction stage could result in the risk of fire or spills of fuels or lubricants from construction equipment (Section 4.1.2 of the 2022 ASC) (Horse Heaven Wind Farm, LLC 2022). Fires may occur as a result of the fuel combustion process associated with construction equipment or generators used on site. Vegetation could pose a fire risk if allowed to grow into the clearance area of power line conductors. The Project would be situated on vacant land with dryland vegetation cover and few trees. The risk of fire would be higher in summer and fall than in winter and spring. The Applicant commitments to mitigate fire risk and impacts are discussed in Section 4.13.1. above.

The Lease Boundary is dominated by rolling hills bisected by meandering canyons, some of which constitute ephemeral or intermittent drainages. During construction, small quantities of a few hazardous materials (e.g.,

[59]As referenced in Section 4.5 Vegetation, Recommended Mitigation Measures Veg-1 states that trees cannot be removed without pre-approval. Where tree disturbance cannot be avoided by the Project (e.g., near transmission lines), the number and location of the trees would be provided to EFSEC, along with a statement justifying why avoidance cannot be achieved and a mitigation plan.

cleaners, insecticides or herbicides, paint, or solvents) may be utilized in the construction yards. These materials would be stored in a secure location within the construction yards when not in use.

The Applicant anticipates that up to 500 gallons of diesel fuel and 200 gallons of gasoline may be kept on site during construction for fueling of equipment. Fuels would be stored in temporary aboveground tanks in the construction yard(s), within an area providing secondary containment. Only small quantities of other hazardous materials would be stored or used during construction. All hazardous chemicals would be stored in a manner that provides secondary containment.

In addition, up to three diesel-powered generators may be required during turbine commissioning. Each generator can hold up to 1,250 gallons of fuel in a tank within a secondary containment system. Supplementing the generator tanks, a 3,000-gallon diesel fuel tank with its own secondary containment system may be on site during turbine commissioning (approximately 19 weeks total) to minimize the need for refueling deliveries.

Most fuel would be delivered to the construction yard by a licensed specialized tanker vehicle on an as-needed basis. Only small quantities of lubricating oils, hydraulic fluid for construction equipment, or other hazardous materials would be maintained on site during construction. Lubricating oil or hydraulic fluids for construction equipment would similarly be brought in as needed for equipment maintenance by a licensed contractor using a specialized vehicle, and waste oils removed by a similarly licensed maintenance contractor. Hydraulic oils for the turbines and dielectric oils for the transformers would also be brought in on an as needed basis and be transferred into the receiving components; none would be stored on site.

Historic and current agricultural practices within the Lease Boundary have likely introduced herbicides and pesticides to the environment. When these soils are exposed to winds and ground disturbance, airborne dust can be transported to nearby lands. Herbicides and pesticides attached to dust particles could, therefore, also be transported away from the Lease Boundary. During construction, earthwork could suspend dust, herbicides, and pesticides, which could be transported by winds. Human exposure to these elements may impact public health. However, given the current agricultural practices, such as tilling and fallow practices, the suspension of dust attached to pesticides and herbicides is occurring under existing conditions. Given that the overall footprint of earthwork related to the Project would be much less extensive than that of agricultural practices in the area, no impacts are expected. Further, the Applicant's use of dust suppression measures would minimize the likelihood of this occurrence.

In the unlikely event of an accidental hazardous material release, the contaminated material or soils would be cleaned up, disposed of, and treated according to applicable regulations. Spill kits containing items such as absorbent pads would be located on equipment and in on-site temporary storage facilities to respond to accidental spills if any were to occur. Employees handling hazardous materials would be instructed in the proper handling and storage of these materials and the locations of spill kits. Further Applicant commitments to reduce the potential for impacts related to hazardous materials releases are described in Section 4.13.1.

Turbine Option 1

Risks related to public health and safety from turbine construction under Turbine Option 1 include the general risks associated with construction equipment and use described above, as well as the following risks specific to turbines:

- Turbines may pose a fire risk due to the combustible materials and lubricants contained in the nacelles.

- Diesel-powered generators that may be used during initial turbine commissioning could pose a fire risk due to the fuel combustion process.

Fire may result from turbine construction under Turbine Option 1 due to existing site conditions and the nature of construction activities. However, potential impacts related to fire could be meaningful, as wildfire risk in the area is considered high (Section 3.13.2.1). Impacts of a fire would be medium, temporary, feasible, and limited in spatial extent. Both emergency responders and residents within and near the Lease Boundary would experience direct impacts (Section 3.13). One of the two fire districts servicing the Lease Boundary is reliant on neighboring fire agencies for structure firefighting (Section 3.13), so suppression of fire in a turbine tower could be delayed. Indirect impacts of fire on members of the public at a distance from the Lease Boundary (e.g., in the Tri-Cities area) could include smoke or haze and a potential reduction in the availability of emergency responders. These impacts would be medium, temporary, feasible, and regional in spatial extent.

Impacts from turbine construction under Turbine Option 1 associated with releases to the environment that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts (few are located near the Wind Energy Micrositing Corridor, where the turbines would be located). Indirect impacts associated with releases to the environment are not expected.

Turbine Option 2

The lower number of turbines under Turbine Option 2 (up to 150 turbines) poses a lower fire risk than Turbine Option 1 (up to 244 turbines). However, public health and safety impacts resulting from fire under Turbine Option 2 would be the same as Turbine Option 1 (medium in severity, but temporary, feasible, and limited in spatial extent). Indirect impacts of fire on members of the public at a distance from the Lease Boundary (e.g., in the Tri-Cities area) could include smoke or haze and a potential reduction in the availability of emergency responders. These impacts would be medium, temporary, feasible, and regional in spatial extent.

The lower number of turbines under Turbine Option 2 (up to 150 turbines) poses a lower risk of spills than Turbine Option 1 (up to 244 turbines). However, the impacts on public health and safety resulting from releases of hazardous materials under Turbine Option 2 would not be different from Turbine Option 1 (medium in severity but temporary, unlikely, and limited in spatial extent). Indirect impacts associated with releases to the environment are not expected.

Solar Arrays

Risks related to public health and safety from solar array construction include the general risks of construction equipment and use. A fire resulting from solar array construction would be medium in severity, temporary, unlikely, and limited in spatial extent. However, potential impacts related to fire could be meaningful, as wildfire risk in the area is considered high (Section 3.13.2.1). Indirect impacts of fire on members of the public at a distance from the Lease Boundary (e.g., in the Tri-Cities area) could include smoke or haze and a potential reduction in the availability of emergency responders. These impacts would be medium, temporary, unlikely, and regional in spatial extent.

There is little risk of a hazardous material release to the environment from solar arrays; inverter station transformers contained within solar arrays include small amounts of oil. Impacts associated with releases to the environment from solar array construction that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts

(Section 3.13), but residents are not expected to experience direct impacts; few residents are located immediately adjacent to each proposed solar array location. Indirect impacts associated with releases to the environment are not expected.

Battery Energy Storage Systems

Risks related to public health and safety from BESS construction would include the general risks associated with construction equipment and use and the following risks specific to BESS:

- Lithium-ion battery storage may pose a risk of fire and explosion due to the tendency for lithium-ion batteries to overheat (flammable electrolyte products can vaporize, vent from cells, and ignite on contact with an ignition source).
- Lithium-ion batteries and lead-acid batteries contain hazardous materials, which could pose a potential for release to the environment if handled improperly.

A fire resulting from BESS construction would be medium in severity, temporary, unlikely, and limited in spatial extent. However, the potential impacts related to fire could be meaningful, as wildfire risk in the area is considered high (Section 3.13.2.1). Indirect impacts of fire on members of the public at a distance from the Lease Boundary (e.g., in the Tri-Cities area) could include smoke or haze and a potential reduction in the availability of emergency responders. These impacts would be medium, temporary, unlikely, and regional in spatial extent.

Impacts associated with releases to the environment from BESS construction that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts; few to no residents are located immediately adjacent to each BESS, depending on its specific location. Indirect impacts associated with releases to the environment are not expected.

Substations

Risks from substation construction related to public health and safety include the general risks of construction equipment and use. A fire resulting from substation construction would be medium in severity, temporary, unlikely, and limited in spatial extent. However, the potential impacts related to fire could be meaningful, as wildfire risk in the area is considered high (Section 3.13.2.1). Indirect impacts of fire on members of the public at a distance from the Lease Boundary (e.g., in the Tri-Cities area) could include smoke or haze and a potential reduction in the availability of emergency responders. These impacts would be medium, temporary, unlikely, and regional in spatial extent.

There is little risk of hazardous material release to the environment from substations; transformers in each substation contain small amounts of oil. Impacts associated with releases to the environment from substation construction that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts; few to no residents are located immediately adjacent to each substation, depending on its specific location. Indirect impacts associated with releases to the environment are not expected.

Comprehensive Project

Construction of the Project as a whole could result in both direct and indirect impacts on public health and safety. Direct impacts related to fire would be medium in severity but temporary, feasible, and limited in spatial extent.

Indirect impacts related to fire, including smoke, haze, and potential for reduced availability of emergency responders, would also be medium in severity, temporary, and feasible, but regional in spatial extent.

Impacts associated with releases to the environment from Project construction that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders could experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts; few residents are located near the Micrositing Corridor, where the turbines would be located, or to the other Project components. Indirect impacts associated with releases to the environment are not expected.

4.13.2.2 Impacts during Operation

Turbine Option 1

Direct and indirect impacts on public health and safety resulting from turbine operation under Turbine Option 1 would be similar to those described for construction under Turbine Option 1, although with a lower rating for likelihood. Spontaneous fire or explosions from operating wind turbines are rare, although not unheard of; one study estimated one fire per year for every 19,230 turbines operating worldwide (Carbon Brief 2014). There are approximately 2,000 wind turbines in Washington State (Hoen et al. 2018). A fire that burned approximately 250 acres in Klickitat County, Washington, occurred in 2019 when a wind turbine's generator caught fire, causing sections of the turbine to melt and then fall to the ground (Carter 2019). Direct impacts on public health and safety would be low in severity and temporary, unlikely, and limited in spatial extent. One of the two fire districts servicing the Lease Boundary is reliant on neighboring fire agencies for structure firefighting (Section 3.13), so fire suppression at a turbine tower could be delayed. Indirect impacts from smoke or haze would be low in severity, temporary, unlikely, and regional in spatial extent.

There is little risk of hazardous material release to the environment from turbine operation under Turbine Option 1; turbine gearboxes contain small amounts of oil and lubricants that are unlikely to be released outside the turbine during maintenance. The Applicant has identified multiple actions to prevent or respond to spills (Section 2.10 of the 2022 ASC) (Horse Heaven Wind Farm, LLC 2022). Releases to the environment from turbine operation would be negligible, temporary, unlikely, and limited in spatial extent.

Turbine Option 2

Direct and indirect impacts on public health and safety resulting from turbine operation under Turbine Option 2 would be similar to those described for Turbine Option 2 construction, with a lower rating for likelihood. Although the lower number of turbines under Turbine Option 2 (up to 150 turbines) compared to Turbine Option 1 (up to 244 turbines) poses an inherently lower risk of occurrence of fire, direct impacts on public health and safety from turbine operation under Turbine Option 2 would be low in severity but temporary, unlikely, and limited in spatial extent. Indirect impacts from smoke or haze would be low in severity, temporary, unlikely, and regional in spatial extent.

There is little risk of hazardous material release to the environment from turbine operation under Turbine Option 2; turbine gearboxes contain small amounts of oil and lubricants that are unlikely to be released outside the turbine during maintenance. The Applicant has identified multiple actions to prevent or respond to spills (Section 2.10 of the 2022 ASC) (Horse Heaven Wind Farm, LLC 2022). Releases to the environment from turbine operation would be negligible, temporary, unlikely, and limited in spatial extent.

Solar Arrays

There is no expectation of risk from fire associated with operation of solar arrays. There is little risk of hazardous material release to the environment from solar arrays; inverter station transformers contained within solar arrays include small amounts of oil that could be released if not properly maintained. The Applicant has identified multiple actions to prevent or respond to spills (Section 2.10 of the 2022 ASC) (Horse Heaven Wind Farm, LLC 2022). Fire or releases to the environment from solar array operation are not expected to impact public health and safety. These impacts would be negligible, temporary, unlikely, and limited in spatial extent.

Battery Energy Storage Systems

Direct and indirect impacts on public health and safety resulting from BESS operation would be similar to those described for BESS construction. A fire resulting from BESS operation would be medium, temporary, feasible, and limited in spatial extent. The potential impacts related to fire could be meaningful, as wildfire risk in the area is considered high (Section 3.12.2.1). Indirect impacts of fire on the public at a distance from the Lease Boundary (e.g., in the Tri-Cities area) could include smoke or haze and a potential reduction in availability of emergency responders. These impacts would be low, temporary, unlikely, and regional in spatial extent.

There is little risk of hazardous material release to the environment from BESS; lithium-ion batteries and lead-acid batteries contain hazardous materials that could pose the potential for release to the environment if not properly maintained. The Applicant has identified multiple actions to prevent or respond to spills (Section 2.10 of the 2022 ASC) (Horse Heaven Wind Farm, LLC 2022). Releases to the environment from BESS operation are not expected to impact public health and safety. These impacts would be negligible, temporary, unlikely, and limited in spatial extent.

Substations

There is a minimal expectation of risk from fire or explosion associated with substation transformers during Project operation. The Applicant's commitments to mitigate fire risk and impacts are discussed in Section 4.13.2.4. Direct impacts on public health and safety would be medium in severity and temporary, feasible, and limited in spatial extent. Indirect impacts from smoke or haze would be low, temporary, unlikely, and regional in spatial extent.

There is little risk of hazardous material release to the environment from substations; transformers contain small amounts of oil that may be released if not properly maintained. The Applicant has identified multiple actions to prevent or respond to spills (Section 2.10 of the 2022 ASC) (Horse Heaven Wind Farm, LLC 2022). Fire or releases to the environment from substation operation are not expected to impact public health and safety. These impacts would be negligible, temporary, unlikely, and limited in spatial extent.

Comprehensive Project

Operation of the Project as a whole could result in both direct and indirect impacts on public health and safety, though these impacts are unlikely. Direct impacts on public health and safety from fire could be low to medium in severity and temporary, feasible, and limited in spatial extent. Indirect impacts from smoke or haze would be low in severity, temporary, unlikely, and regional in spatial extent. Releases to the environment from operation of the Project are not expected to impact public health and safety. These impacts would be negligible, temporary, unlikely, and limited in spatial extent.

4.13.2.3 Impacts during Decommissioning

Turbine Option 1

Direct and indirect impacts on public health and safety during decommissioning of turbines under Turbine Option 1 would be similar to those described for construction under Turbine Option 1. Direct impacts related to fire would be medium in severity, and temporary, feasible, and limited in spatial extent. Indirect impacts related to smoke and haze would also be medium, temporary, and feasible, but regional in spatial extent.

Impacts associated with releases to the environment that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts (few residents are located near the Micrositing Corridor, where the turbines would be located). Indirect impacts associated with releases to the environment are not expected.

Turbine Option 2

Direct and indirect impacts on public health and safety during decommissioning of turbines under Turbine Option 2 would be similar to those described for construction under Turbine Option 2. Direct impacts related to fire would be medium in severity, and temporary, feasible, and limited in spatial extent. Indirect impacts related to smoke and haze would also be medium, temporary, and feasible, but regional in spatial extent.

Impacts associated with releases to the environment that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts (few residents are located near the Micrositing Corridor, where the turbines would be located). Indirect impacts associated with releases to the environment are not expected.

Solar Arrays

Direct and indirect impacts on public health and safety during decommissioning of solar arrays would be similar to those described for the construction of the solar arrays. A fire resulting from solar array decommissioning would be medium in severity but would be temporary, unlikely, and limited in spatial extent. Indirect impacts related to smoke and haze would be medium, temporary, unlikely, and regional in spatial extent.

There is little risk of hazardous material release to the environment from solar arrays; inverter station transformers contained within solar arrays include small amounts of oil. Impacts associated with releases to the environment from solar array decommissioning that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts (few to no residents are located immediately adjacent to each proposed solar array location). Indirect impacts associated with releases to the environment are not expected.

Battery Energy Storage Systems

Direct and indirect impacts on public health and safety during decommissioning of the BESS would be similar to those described for BESS construction. A fire resulting from BESS decommissioning would be medium in severity but is considered temporary, unlikely, and limited in spatial extent. Indirect impacts from smoke and haze would be medium, temporary, unlikely, and regional in spatial extent.

Impacts associated with releases to the environment from BESS decommissioning that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts (few to no residents are located immediately adjacent to each BESS, depending on its specific location). Indirect impacts associated with releases to the environment are not expected.

Substations

Direct and indirect impacts on public health and safety during decommissioning of the substations would be similar to those described for the construction of the substations. A fire resulting from substation decommissioning would be medium in severity but would be temporary, unlikely, and limited in spatial extent. Indirect impacts related to smoke and haze would be medium in severity, temporary, unlikely, and regional in spatial extent.

There is little risk of hazardous material release to the environment from substations; transformers in each substation contain small amounts of oil. Impacts associated with releases to the environment from substation decommissioning that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13) but residents are not expected to experience direct impacts (few to none are immediately adjacent to each substation, depending on its specific location). Indirect impacts associated with releases to the environment are not expected.

Comprehensive Project

Decommissioning of the Project as a whole could result in both direct and indirect impacts on public health and safety. Direct impacts related to fire would be medium in severity, but temporary, feasible, and limited in spatial extent. Indirect impacts related to smoke and haze would also be medium in severity, temporary, and feasible, but regional in spatial extent.

Impacts associated with releases to the environment from Project decommissioning that may affect public health would be medium in severity but temporary, unlikely, and limited in spatial extent. Emergency responders would experience direct impacts (Section 3.13), but residents are not expected to experience direct impacts; few residents are located near the Micrositing Corridor, where the turbines would be located, or to the other Project components. Indirect impacts associated with releases to the environment are not expected.

4.13.2.4 Recommended Mitigation Measures

This section describes measures that would reduce or compensate for impacts related to public health and safety from construction, operation, and decommissioning of the Project. EFSEC has identified the following mitigation measures for the Project to avoid and/or minimize potential impacts on public health and safety. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action.

PHS-1[60]: Fire Suppression Aircraft Access: In the event of a major wildfire occurring in an area where fire suppression aircraft may need access near the Project, whether related to the Project or resulting from another cause, the Applicant would shut down turbines temporarily.

Rationale: This mitigation measure would allow access for fire suppression aircraft carrying water and fire suppression chemicals, as needed.

[60] PHS-: Identifier of numbered mitigation item for Public Health and Safety

4.13.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from the adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[61]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary

[61] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information[62]
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remains. The additional Applicant commitments identified above do not change the impact ratings previously provided for public health and safety in the Draft EIS, and the impact ratings remain the same.

4.13.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which in turn depend on the magnitude and duration of an impact. “Significant” in SEPA means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This EIS weighs the potential impacts on public health and safety that may result from the Project with mitigation and makes a resulting determination of significance for each impact, shown in **Tables 4.13-3a, 4.13-3b, and 4.13-3c**. As shown in the impact summary tables below, EFSEC has determined that the Project would result in no significant unavoidable adverse impacts to public health and safety.

[62] The Applicant’s post adjudication commitments include updating the thermal runaway mitigation design of its BESS to align with the updated guidance from the NFPA 855 standard committee, members of the International Fire Code standard committee, and the Society of Fire Protection Engineers.

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Table 4.13-3a: Summary of Potential Impacts on Public Health and Safety during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Fire (Worker Health and Safety)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. For instance, combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during construction. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Fire (Worker Health and Safety)	Solar Arrays BESS Substations	Fire resulting from solar array, substation, and BESS construction is unlikely, but wildfire risk in the area is considered high.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified
Public Health (Smoke and Haze)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. For instance, combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during construction. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Regional	No mitigation identified	None identified
Public Health (Smoke and Haze)	Solar Arrays BESS Substations	If a fire were to occur during construction of the solar arrays, substation, or BESS, indirect impacts could include smoke or haze, and a potential reduction in emergency response services.	Medium	Temporary	Unlikely	Regional	No mitigation identified	None identified
Public Health and Safety (Hazardous Materials Release)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Hazardous materials, including diesel fuel, lubricating oils, hydraulic fluid, paints, and solvents would be used and stored on site. Spill kits would be maintained, minimizing the risk of a release if a spill were to occur.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.13-3b: Summary of Potential Impacts on Public Health and Safety during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Fire (Worker Health and Safety)	Turbine Option 1 Turbine Option 2	Spontaneous fire or explosions from operating wind turbines are rare but could occur during Project operations.	Low	Temporary	Unlikely	Limited	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified
Fire (Worker Health and Safety)	Substations	Substation transformers have a minimal risk of fire or explosion during construction.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Fire (Worker Health and Safety)	BESS **Comprehensive Project**	Lithium-ion batteries used for the BESS may pose a risk of fire and explosion during operation because they may overheat, but the BESS would include a fire suppression system.	Medium	Temporary	Feasible	Limited	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified
Public Health (Smoke and Haze)	Turbine Option 1 Turbine Option 2 BESS Substations **Comprehensive Project**	Indirect impacts if a fire were to occur during operation of the turbines and substation could include smoke or haze, and a potential reduction in emergency response services.	Low	Temporary	Unlikely	Regional	**PHS-1:** Turbines will be shut down for the duration of any fire located within the region of the Project.	None identified
Release of Hazardous Materials	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Project elements include small amounts of oil and batteries, but a release is unlikely to occur during operations.	Negligible	Temporary	Unlikely	Limited	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.13-3c: Summary of Potential Impacts on Public Health and Safety during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Fire (Worker Health and Safety)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Combustible materials and lubricants are contained in the nacelle of the turbines. Diesel-powered generators may be used during decommissioning. Use of these materials could pose a fire risk.	Medium	Temporary	Feasible	Limited	No mitigation identified	None identified
Fire (Worker Health and Safety)	Solar Arrays BESS Substations	Fire resulting from decommissioning BESS, solar array, and substations is unlikely, but wildfire risk in the area is considered high.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified
Public Health (Smoke and Haze)	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	If a fire were to occur during turbine decommissioning, indirect impacts could include smoke or haze, and a potential reduction in emergency response services.	Medium	Temporary	Feasible	Regional	No mitigation identified	None identified
Public Health (Smoke and Haze)	Solar Arrays BESS Substations	If a fire were to occur during decommissioning of the solar arrays, substation, or BESS, indirect impacts could include smoke or haze, and a potential reduction in emergency response services.	Medium	Temporary	Unlikely	Regional	No mitigation identified	None identified
Release of Hazardous Materials	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Project elements include small amounts of oil, which could be released during decommissioning.	Medium	Temporary	Unlikely	Limited	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

4.13.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to public health and safety from the construction, operation, and decommissioning of the Project would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.14 Transportation

This section describes the impacts on transportation that could result from Horse Heaven Wind Farm, LLC's (the Applicant) proposed Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Section 3.14 identifies transportation facilities within the study area for the Project. The study area for the transportation analysis includes roadway intersections, railroad mainlines, and waterway freight corridors in the vicinity of the Project, which is defined as approximately 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. Transportation systems beyond the Washington border, including analysis of Interstate 84 (I-84), are not included in this assessment.

Impacts are analyzed for construction, operation, and decommissioning of the Project. Laws and regulations that are now current may be different at decommissioning, and there is no way to anticipate how or if laws and regulations may change. The analysis of impacts from decommissioning is based on existing laws and regulations at the moment in time the Application for Site Certification (ASC) was submitted to the Washington Energy Facility Site Evaluation Council (EFSEC). EFSEC may request that additional studies be completed as a form of mitigation prior to the decommissioning of the Project.

4.14.1 Method of Analysis

In accordance with the Washington State Environmental Policy Act, this Environmental Impact Statement (EIS) weighs the likelihood of occurrence with the severity of an impact (Washington Administrative Code [WAC] 197-11-794) and considers several factors when determining the significance of identified potential impacts (WAC 197-11-330 and WAC 197-00-794). The impact rating is summarized in **Table 4.14-1**.

Table 4.14-1: Impact Rating Table for Transportation from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Table 4.14-2 defines the qualitative framework used herein to rank the magnitude impact for transportation.

Table 4.14-2: Criteria for Assessing Magnitude of Impacts on Transportation

Magnitude of Impacts	Description
Negligible	**Level of Service:** A decrease in LOS would not occur. **Access:** No impact expected to a public resource or private residence. **Roadway Safety:** There is no potential for roadway safety to decrease.
Low	**Level of Service:** Traffic volumes would increase, but a decrease in LOS is not expected. **Access:** Impacts could occur for access to public resources or private residences, but impacts would not be frequent during any stage of the Project. **Roadway Safety:** There is no potential for roadway safety to decrease.
Medium	**Level of Service:** Traffic volumes would increase measurably with the potential in LOS to decrease, but still be maintained at performance standards adopted in the transportation element of the Benton County Comprehensive Plan (Benton County 2022). **Access:** Impacts would be expected to occur for access to public resources or private residences. Impacts could occur frequently. **Roadway Safety:** Increased traffic on highways/freeways, at intersections or railroad crossing have the potential to decrease roadway safety.
High	**Level of Service:** Traffic volumes would increase measurably, and the LOS would decline below the performance standards adopted in the transportation element of the Benton County Comprehensive Plan (Benton County 2022). **Access:** Impacts would occur for access to public resources or private residences. Impacts would occur frequently and for measurable lengths of time. **Roadway Safety:** Increased traffic on highways/freeways, at intersections or railroad crossing are expected to decrease roadway safety.

LOS = level of service

Roadway-related impacts were evaluated based on standards, guidelines, and procedures published in the Highway Capacity Manual (TRB 2016). The transportation impact analysis included traffic count data assembled by the Applicant (Horse Heaven Wind Farm, LLC 2023).

This EIS considers the impact of the Project as a whole. To align the impact rating system described by the Applicant's transportation impact analysis in the ASC, this evaluation of transportation analyzes potential impacts from the Proposed Action in the context of the Applicant's example of a phased approach to construction:

- Phase 1 construction could generate power via wind and solar. Phase 1 could also include a battery energy storage system (BESS) capable of storing energy.
  - Phase 2 construction is divided into Phase 2a and Phase 2b, summarized as follows:
    - Phase 2a could consist of the construction of both wind and solar facilities. The Applicant's Phase 2a scenario also includes the construction of a BESS.
    - Phase 2b could increase power generation via the construction of additional wind turbines, but construction would not include a BESS.

Chapter 2 contains more information on the Applicant's example of a phased approach to construction. The construction schedule, including phasing of specific elements of the Project, could alter the details of the analysis. Additional analysis would be required in order to confirm what impact the combining of construction phases would

have on traffic volume. The ASC suggests that any construction traffic volume increases from combining the two phases are expected to be minimal and unlikely to affect the analysis for the phased approach.

Applicant Commitments

The Applicant identified measures and/or best practices that are intended to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the Final ASC (Horse Heaven Wind Farm, LLC 2023) and taken into consideration in the characterization of potential impacts on recreation resources are discussed in Section 2.1.3 and summarized below.

- All road improvement and construction would be performed in conjunction with Benton County Public Works requirements following Benton County standards. The Applicant would maintain new access roads to access the turbine structures during operations.
- Prior to commencement of construction, the Applicant would consult with the Washington State Department of Transportation (WSDOT) and Benton County on the development of a Construction-Stage Traffic and Safety Management Plan.
- The Applicant would obtain all necessary WSDOT permits to access, modify ingress and egress for, or transport regulated loads on state-managed roadways.
- The Applicant would obtain WSDOT trip permits for oversized and overweight loads.
- When slow or oversized wide loads are being hauled, appropriate vehicle and roadside signing and warning devices would be deployed. Pilot cars would be used as WSDOT dictates, depending on load size and weight.
- A detailed haul plan would be developed once turbines have been selected and the construction schedule developed. This haul plan would confirm source locations and routes to be used during Project construction, as well as anticipated loads and haul schedule.
- The Transportation Study provided as Appendix V of the Final ASC would be verified and updated to include detailed condition assessments of roads to be used, structural assessments, and plans for improvement and maintenance.
- Ingress and egress points would be located and improved (if needed) to ensure adequate capacity for existing and projected traffic volumes and to provide efficient movement of traffic, including existing and anticipated agricultural traffic.
- The Applicant would coordinate with EFSEC and Benton County to identify a qualified third-party engineer who would document road conditions prior to construction and again within 30 days after construction is complete or as weather permits.
- A service agreement between the Applicant and Benton County would ensure post-construction road restoration to conditions as good or better than preconstruction.
- The Applicant or its contractor and EFSEC staff would meet prior to final site plan approval to outline steps for minimizing construction traffic impacts, including conflicts if state-imposed roadway restrictions could affect transporter routes.

- The Applicant or its contractor would provide advance notification to adjacent landowners and farmers through mailing, informal meeting, open house, or other similar methods when construction would take place in the vicinity of their homes and farms to help minimize access disruptions.
- All construction vehicles would yield to school-related vehicles (e.g., school buses) and would lower their speed when approaching a school bus or bus stop along the transporter route.
- Advanced warning and proper roadway signage would be placed on major state and Benton County roads to warn motorists of potential Project-related vehicles entering and exiting the roadway.
- Carpooling among the construction workers would be encouraged to reduce traffic volume to and from the Project site.
- Detour plans and warning signage would be provided in advance of any planned traffic disturbances.
- The Project will utilize appropriate signage where needed to direct the public from entering restricted areas. During construction, temporary barriers and traffic control measures will be utilized where applicable.
- Flaggers would be employed as necessary to direct traffic when large equipment is exiting or entering public roads to minimize the risk of accidents. Should the Applicant or its construction contractor receive notice during Project construction of transportation events (e.g., WSDOT or Benton County transportation projects, roadway incidents, other traffic events) that give rise to a safety concern, the Project construction manager would review the Traffic and Safety Management Plan in coordination with the applicable agency and address additional safety measures, including flagging, as may be appropriate for the situation.
- If lane closure must occur, adequate signage for potential detours or possible delays would be posted.
- Advance notification would be provided to emergency providers and hospitals when public roads may be partially or completely closed.
- Emergency vehicles would be given the right-of-way as required by local, state, and federal requirements.
- Site access roads and an entrance driveway to the operation and maintenance (O&M) facilities on site would be constructed to service truck movements of legal weight and provide adequate sight distance.
- Traffic control requests would be coordinated through the WSDOT traffic engineer and the Benton County Public Works Department, abiding by seasonal County road restrictions.
- A haul and approach route would be developed in coordination with the appropriate jurisdictional authorities.
- Permanent private Project access roads would be maintained by the Applicant for the life of the Project.
- Tracked vehicles and heavy trucks would be restricted to approved transporter roads to prevent damage to the surface and base of Benton County roads.
- Turbines and permanent meteorological towers would be lit according to Federal Aviation Administration (FAA) regulations.
- The Applicant would obtain Determinations of No Hazard to Air Navigation from the FAA prior to the construction of each turbine.

- Advance warning and proper roadway signage would be placed on highways and Benton County roads to warn motorists of potential vehicles entering and exiting the roadway.
- After construction, all-weather access roads (including graveled roads), suitable to handle emergency equipment, would be provided within 150 feet of any built structure or surface activity area.
- If the final Project construction schedule coincides with the County's planned paving operation on County Well Road, the Applicant will coordinate its construction and transportation activities with Benton County Public Works for reasonable accommodation to avoid conflicts between the two actions. A Traffic Management Plan will also be developed for each phase of construction, to alert drivers of increased construction traffic entering and exiting the public roadways.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.14.2.5, Post-Adjudication Applicant Commitments.

4.14.2 Impacts of Proposed Action

Impacts on vehicular traffic from the Project are expected and are described for the construction, operation, and decommissioning of the Project in Sections 4.14.2.1, 4.14.2.2, and 4.14.2.3, respectively.

Transportation Systems

A source haul route has not been finalized. The designated haul routes and methods of transport would be a commercial decision and an element of the negotiated purchase agreement. Development of some of the required information, such as source location for products, detailed schedule, and structural assessment of existing transportation systems, would be provided following turbine selection. EFSEC will review final commercial decisions to determine if additional environmental analysis is needed.

Wind energy components for similar projects, including tower sections, nacelle and turbines, and blades, have been shipped to either a western U.S. port or overland on the interstate highway system. The U.S. ports near the Project site are the Port of Longview and the Port of Vancouver, from which components would be transported by specialized trucks along interstate, state, county, and private roadways.

New access roads, constructed within the Lease Boundary, would be owned and maintained by the Applicant; the general public would not have access to these roads during construction, operation, or decommissioning of the Project, although participating landowners would maintain access during the Project. All work done on existing Benton County roads would be performed in accordance with Benton County standard plans and with review and approval by the County Engineer (Benton County n.d.).

Vehicular Traffic

Approximately 29 intersections, not including new Project access roads, are present in the Project vicinity that would be utilized for the Project. A subset of seven intersections was chosen to provide an estimate of the largest potential site-wide level of service (LOS) impacts. Benton County's designated LOS is "C." A roadway meets an LOS C standard when traffic flow remains uninterrupted, even at peak hours, by congestion or delays related to traffic volume and configuration (Benton County 2022). When new demands on the service system exhaust the available capacity and decrease the LOS below the designated LOS of C, new capacity must be created. Typically, new capacity is created by modifying the geometrics of the roadway (e.g., adding a new traffic lane, turning lane, widening shoulders, etc.).

Impacts of the construction, operation, and decommissioning of the Project on vehicular traffic are assessed in this analysis.

Air Traffic

An FAA Determination of No Hazard to Air Navigation would have to be obtained for the Project. Minimal glare is anticipated from the Project's solar arrays (see Section 4.10). The Project would adhere to all FAA and Benton County development regulations as they pertain to turbine siting and safety. In accordance with Washington State requirements under House Bill (HB) 1173, passed in 2023, an application would be submitted to the FAA to allow installation of a light mitigating technology system known as Aircraft Detection Lighting Systems (ADLS). If authorized by FAA, the ADLS would be installed to reduce the need for nighttime flashing red warning lights on Turbines.

The FAA developed Federal Aviation Regulation (FAR) Part 103 to regulate certain piloted "vehicles" flown for recreation and sport purposes. Such ultralight vehicles are described in FAR 103.1 and include what are commonly known as paragliders, hang gliders, ultralights, powered paragliders, and powered parachutes. FAR Part 103 states that an ultralight vehicle cannot be used in commercial operations or operated in any manner that creates a hazard to persons or property. It cannot be operated over any congested area, over an open-area assembly of persons, or any airport traffic area, any air traffic control zone, or any area covered by airport radar service. The paragliding and hang gliding recreational activities are analyzed in Section 4.12.

Impacts on commercial air traffic are not expected and are not discussed further in this analysis.

Waterborne and Rail Traffic

Some Project components may be delivered to ports, such as the Port of Vancouver or Port of Longview, for Project construction. Detailed transportation plans, including port delivery locations and long-range transport routes, would be developed following turbine selection. No Project construction activities would interfere with existing waterborne or rail transportation in Benton or Franklin County, and if components are delivered to a port, it would be a facility accustomed to handling large deliveries and capable of managing components such as those required for a wind farm.

Impacts on waterborne traffic are not analyzed in further detail herein.

Rail transportation could be utilized as there are Burlington Northern Santa Fe Railway facilities near the Lease Boundary. As rail transportation was not considered in the ASC, this EIS does not include a determination of impact on railroad operations.

Rail transportation is not analyzed in further detail herein.

Parking

Parking during construction and decommissioning (e.g., of construction vehicles) would occur at construction laydown yards and within the Wind Energy Micrositing Corridor. These parking locations would not impede or displace any existing parking areas in the study area.

Once constructed, the O&M facilities would have parking areas for operations vehicles. Plans for maintenance and runoff control from the parking areas at the O&M facilities would be dictated by the Erosion and Sediment Control Plan, including the best management practices, and a Stormwater Pollution Prevention Plan. The Project would not displace any existing private parking within the area, and no impacts related to existing parking would occur.

Parking is not analyzed in further detail herein.

Movement/Circulation of People or Goods

Interstate 82 (I-82) is a four-lane divided highway, allowing for movement or circulation of people around larger loads exiting the interstate. Multipurpose use (e.g., vehicular, bicycle, pedestrian) of existing rights-of-way on existing roads would be maintained during construction, operation, and decommissioning of the Project. No multipurpose use of new Project access roads would occur during construction, as the new Project roads would not be open to the public. Potential impacts on the movement/circulation of people or goods, in relation to the broader element of transportation, are assessed in this analysis.

Traffic Hazards

Traffic hazards associated with construction projects are generally related to accident occurrence. There are no railroad crossings, school zones, or dedicated pedestrian crossings within the Lease Boundary. School zones that exist within the study area for the Project are described in Section 3.14.

Railroad crossings and other grade fluctuations pose high levels of risk for oversized loads with low ground clearance. The hazards include the fact that trains cannot stop quickly. Railroad crossings that are in the vicinity of the Project (USDOT n.d.) and that could intersect the assumed transport routes of materials for the Project are discussed in Section 3.14.

Traffic counts for rail crossings were not provided in the ASC but would be included in the required traffic analysis, as discussed in Section 4.14.2.4. All crossings except Crossing 928192L are located above (via an overpass) or under (via an underpass) the transport route. Crossing 928192L along Dallas Road is a grade crossing, meaning that the crossing occurs at the same grade as other traffic. Stopping distances for passenger trains are comparable to those for freight trains. A 150-car freight train at 50 miles per hour (mph) needs 8,000 feet to stop, and an eight-car passenger train at 79 mph needs about 6,000 feet to stop (USDOT 2020).

The Highway Safety Manual (HSM) analysis indicates that four of the study area intersections, listed below, could potentially be improved with safety measures (Horse Heaven Wind Farm, LLC 2023):

- Route 221 at Sellards Road
- Route 221 at Route 14
- Route 14 at S. Plymouth Road
- Webber Canyon Road and Badger Road

Traffic hazards occur with all projects, especially projects that require work zones for maintaining and upgrading roadways. Daily changes in traffic patterns, narrowed rights-of-way, and other construction activities often create a combination of factors resulting in crashes, injuries, and fatalities (USDOT FHWA 2021). Potential traffic intersection improvements, as indicated by the Applicant, are shown in **Figure 4.14-1**.

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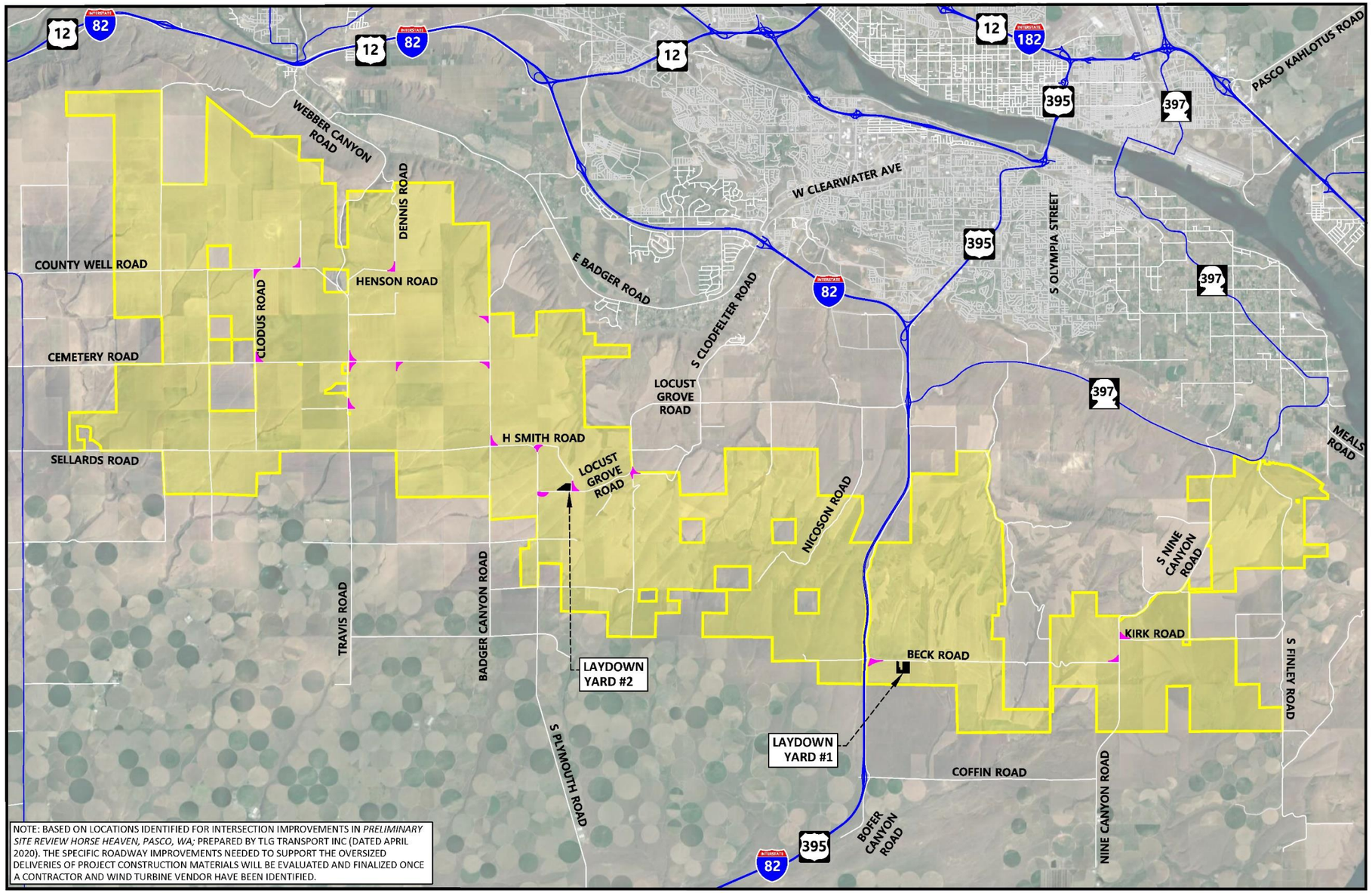

Source: Horse Heaven Wind Farm, LLC 2023

Figure 4.14-1: Potential Traffic Mitigation Locations - Oversized Loads

4.14.2.1 Impacts during Construction

During peak construction, a typical day would include the transportation of workers, transportation of materials, and movement of heavy equipment.

On-site workers would include technicians, laborers, foremen, equipment operators, and construction managers, with approximately 62 percent of these positions expected to be filled by workers normally residing in Benton and Franklin Counties (Horse Heaven Wind Farm, LLC 2023). Most of the construction worker traffic would originate from the Tri-Cities of Kennewick, Pasco, and Richland, as well as nearby communities. The workforce would use the same roads to access the Project as the equipment transporters. To be conservative with analysis, it is assumed that workers would drive alone and that the average vehicle would only have 1.25 occupants (Horse Heaven Wind Farm, LLC 2023). Private vehicles would primarily travel mornings and evenings, corresponding to the workday, and the construction truck traffic would be more uniformly distributed throughout the workday. For the LOS analysis, the more conservative 374 worker trips for the construction of the first half of the Project and 344 worker trips for the construction of the second half of the Project were used. Two Project laydown yard locations have been preliminarily identified, one adjacent to the eastern substation location on Beck Road and one along Locust Grove Road near the intersection with H Smith Road.

During construction, trucks would use I-82, State Route 397, and local Benton County roads to bring construction equipment, turbine components, solar components, substation equipment, and transmission line equipment to the various Project construction sites. One of the identified improvement projects identified in the Benton County 2022-2027 Six-Year Transportation Improvement Plan includes a segment of County Well Road. The segment is on the west side of the Project and is scheduled to be reconstructed to an all-weather standard by Benton County during the same time as Project construction and operation (Benton County 2021; Horse Heaven Wind Farm, LLC 2023).

Trucks would also be used to bring road base aggregate to improve existing roads and construct new access roads; concrete for the turbine, substation, BESS, and O&M facility foundations; and water for dust control. Some large Project components such as turbine blades, tower components, and nacelles may be delivered to remote ports, such as the Port of Vancouver or Port of Longview, and transported overland via I-84 to I-82. Other components may originate within the continental United States and be transported overland from other locations to I-84 and on to I-82 (Horse Heaven Wind Farm, LLC 2023).

Typical construction equipment used in the construction of wind and solar facilities is listed in **Table 4.14-3**. Two laydown yards would be established within the Lease Boundary to facilitate the delivery and assembly of materials and equipment. Equipment such as excavators, trenching equipment, backhoe loaders, cranes, forklifts, and other material handling equipment would be brought on site by a flatbed semi-tractor trailer and would remain on site throughout construction. Equipment such as water trucks, fuel trucks, service trucks, and trucks delivering components would make frequent trips to deliver supplies. Some trucks would be required to obtain oversize/overweight permits, which allow travel on all unrestricted roads.

Table 4.14-3: Construction Equipment

Type of Equipment	Construction Use
Heavy Vehicles	
Bulldozer (medium)	Access road and driveway leveling
Scraper	Access road and driveway leveling
Drum Compactor	Compacting
Skid Steer Loader	Light soils work for slabs and foundations
Road Grader	Access road and driveway leveling
Excavator	Trenching and foundations
Trenching Equipment/Cable Plows	Trenching
Backhoe Loader	Moving materials
Tracked Pile Driver	Driving piles into ground
Cable Reel Truck	Dispensing cable
Concrete Pump Truck	Delivering concrete
Mobile Hydraulic Crane/Truck Mounted Crane	Moving materials
2,000 kW Generators	Turbine Commissioning
Load Banks	Turbine Commissioning
Large Crawler Crane	Moving materials
Water Trucks	Dust control
Fuel Trucks	Refueling equipment
Non-heavy Vehicles	
Forklifts/Telehandler	Moving materials, loading and unloading of trucks
Personnel Transport Vehicles	Transporting workers
Other Material Handling Equipment	Moving materials
Service Trucks	Maintaining heavy equipment
Other Equipment	
Disposal Containers	Disposing of and removing construction debris
Other General Industrial Equipment	Assembling structures
Plate Compactors/Jumping Jacks	Compacting soil for concrete slabs and foundations
Pressure Washers	Cleaning
Storage Containers	Storing on-site materials
Welders	Assembling structures

Source: Horse Heaven Wind Farm, LLC 2023
kW = kilowatt

During construction, portions of existing roads may need to be improved, resulting in the temporary widening and increased turning radii of some public and private roads. Following the completion of construction, these improvements would be removed and the area restored to preconstruction conditions to the extent practical unless otherwise requested by the landowner. TLG Transport (TLG) reviewed whether trucking configurations for towers and blades could reach previously proposed pad sites along proposed access routes within the Lease

Boundary (Horse Heaven Wind Farm, LLC 2022, Appendix V). TLG's assessment was conducted using preliminary information provided by the Applicant. The report may not represent a complete list of all necessary improvements, as changes to the site design may require additional improvements as the Project evolves. The road improvement information provided would be updated when turbine selection and layout have been finalized. Preliminary road intersection improvements are identified in Figure 3.14-2 and Figure 3.14-3.

In consultation with WSDOT, the Applicant chose 10 roadway segments and 29 study area intersections that could potentially be impacted during Project construction for analysis in the Final ASC. Two additional intersections, located at the proposed future site driveways to laydown areas, were also included in the Applicant's analysis. The Project would result in short-term increases in traffic levels due to the daily movement of construction workers to and from the Project site, as well as daily material and equipment deliveries. Based on the Final ASC, the proposed Project would not result in any capacity constraints at the study area roadways or intersections (Horse Heaven Wind Farm, LLC 2023).

The proposed Project would result in a maximum increase in delay of approximately 2 seconds per vehicle except at the intersection of Bofer Canyon Road and Locust Grove Road/Route 397. This intersection is expected to have an increase in delay of approximately 8.1 seconds during the weekday PM peak hour for Phase 1 to Laydown Yard 1. The proposed site driveways serving Laydown Yard 1 and Laydown Yard 2 are expected to operate at LOS B or better for all construction scenarios. All roadway segments analyzed are expected to operate at LOS A during all analysis scenarios, except for I-82 (north of Coffin Road) which will operate at LOS B or better. This roadway segment will operate at LOS A in the northbound direction and LOS B in the southbound direction during all analysis scenarios. The proposed Project would have no measurable impact to roadway operations (with no change in the LOS due to Project-related traffic increases). The unsignalized intersection capacity analysis completed by the Applicant indicates that the intersections would be maintained at an LOS of D or better.

Local Gravel Roads

It is likely that all local gravel roads would be improved to accommodate the heavy vehicle traffic associated with the Project, and the improved condition would remain even after construction, resulting in high probability of improved ride quality and road surface condition (Horse Heaven Wind Farm, LLC 2023). A maintenance agreement with Benton County would be developed for the paved roads to repair any damaged caused by construction. At most locations this is not a concern; however, some of the paved roads that usually have very little if any truck traffic may not be designed for the size and frequency of loads that would occur for the Project. Preconstruction improvements for reasonable and necessary actions and condition assessment for all roads would be addressed through a maintenance agreement. Thus, only occasional short delays would be experienced during the improvement of roads for construction.

Turbine Option 1

Additional impacts are likely due to the delivery of large components. The delays caused by slow-moving large components are not quantifiable; however, navigation throughout the area, particularly of turbine blades, is expected to cause occasional delays and obstructions while turning. Temporary road modifications would be required in order to accommodate the necessary large-component turning radii at designated locations. Up to 275 truck trips per day would be generated by activities related to public road intersection improvements, access roads, substations, O&M facilities, transmission lines, and turbine construction during the 22-month construction timeframe for the combination of Phase 1 and Phase 2b, resulting in an estimated total of 68,621 truck trips. Construction equipment that moves on a day-by-day basis, such as cranes and derricks that would be used for

the construction of the proposed towers, could pose a hazard to aviation safety for non-commercial aircraft during the construction period.

Impacts from turbine construction under Turbine Option 1 that may affect transportation would be medium in magnitude due to the increased possibility of incidents during the improvements to roadways that could be required for the transportation of turbines and potential impacts on access to public facilities such as recreation resources. Impacts would be short term in duration due to the impacts occurring during the Construction Stage. Impacts would be unavoidable due to the size of the turbines, required road improvements, and the amount of truck trips required for transport. Impacts from the transportation of the heavy and wide loads could occur outside of the Lease Boundary past neighboring receptors, indicating a regional spatial extent.

Turbine Option 2

Impacts on transportation during construction of turbines under Turbine Option 2 would be similar to those described for construction under Turbine Option 1. Impacts from turbine construction under Turbine Option 2 that may affect transportation would be medium in magnitude due to the increased potential for incidents during the potential improvements to roadways required for the transportation of turbines and short term in duration due to the impacts occurring during the entire Construction Stage. Impacts would be unavoidable due to the size of the turbines, required road improvements, and the amount of truck trips required for transport. Impacts from the transportation of the heavy and wide loads could occur outside of the Lease Boundary past neighboring receptors, indicating a regional spatial extent.

Solar Arrays

The transportation of solar arrays throughout the area is expected to cause occasional delays and obstructions while the trucks are turning. Approximately 152 truck trips per day would be generated by solar array construction, resulting in an estimated 40,023 truck trips.

Impacts would be medium in magnitude due to the increase in traffic, short term in duration, unavoidable, and local in spatial extent due to neighboring receptors seeing a decrease in LOS, but interstates are believed to be able to handle the increase in traffic.

Battery Energy Storage Systems

The transportation of BESS components throughout the area is expected to cause occasional delays and obstructions while trucks are turning. Approximately 14 truck trips per day would occur for the construction of the two BESS, resulting in a total of 3,548 truck trips.

Impacts would be low in magnitude, temporary in duration, probable during the transportation of BESS-related components, and local in spatial extent.

Substations

Impacts during the construction of the substations could occur due to the delivery of large components. The transportation of substations throughout the area could cause occasional delays and obstructions while trucks are turning.

Impacts would be low in magnitude due to the minor increase in traffic, temporary in duration due to the short time expected to transport the materials required to construct the substations, probable during the transport of substation-related components, and local in spatial extent.

Comprehensive Project

It is assumed that construction of the transmission lines would occur concurrently with the wind farm, solar, and BESS construction so that the combined average daily trips during the 21 to 22 months when all activities are underway would be approximately 365 truck trips per day. Because construction material and equipment traffic is not uniform, this number is increased by 25 percent to estimate peak periods, yielding an estimated maximum of 457 truck trips per day during peak construction.. Applicant-committed measures would be implemented to reduce the level of impact. For these reasons, the Project would be consistent with the transportation element of the Benton County Comprehensive Plan.

During Project construction, many construction vehicles, including trucks with oversized and overweight loads, would need to share the existing roadway network with the general public. As a result, some accidents could occur that would be directly attributable to construction traffic. Emergency vehicles may experience delays responding to emergencies if public roads are partially or completely closed. During construction, fuels and waste products would be transported to and from the Project by a licensed specialized tanker vehicle on an as-needed basis. Spill prevention during construction would include preventive procedures to avoid spills during transportation and the requirement of a Spill Prevention Control and Countermeasures Plan, to be developed by the construction contractor.

The ASC analyzed impacts closest to the Lease Boundary and did not address areas at further distances. Considering the amount of Project-related truck and worker commute traffic, there could be a medium-magnitude impact on the public's access to recreational facilities and private residences within 3 miles of the Lease Boundary, a low-magnitude impact on areas within 3 to 6.5 miles of the Lease Boundary, and a negligible magnitude impact on the public's access to facilities past 6.5 miles. A high-magnitude impact on access is not expected. Farming equipment may experience traffic delays along roadways due to the construction required for road modifications, transportation of oversized loads, and the increase in commuter traffic. Recreationists using facilities that utilize the same access roads as the Project may experience delays during the Construction Stage, and impacts are further analyzed in Section 4.12.

Impacts from the combined construction of the Project would be medium in magnitude, short term due to the potential for impacts to occur during the entire Construction Stage, unavoidable, and regional in spatial extent.

4.14.2.2 Impacts during Operation

The ASC did not provide information that would allow separate analysis of the operation of Turbine Option 1, Turbine Option 2, substations, and BESS. Once operational, expected traffic volumes during normal operation of the Project would be up to 16 to 20 vehicle trips per day to and from the O&M facilities by O&M staff. O&M staff would commute to the Project during normal peak commuting hours. It is assumed that O&M staff would reside in the Tri-Cities or nearby communities and use the same roads that would be used by the workforce during construction of the Project; operational traffic generation would be minimal. O&M staff would perform scheduled preventive maintenance on the turbines, solar module, and battery storage facilities. O&M staff would drive throughout the Project on a regular basis conducting unrecorded visual inspections of the Project. Truck traffic would be minimal; heavy equipment may be brought in occasionally for major repairs or turbine replacement, but these occasions are expected to be infrequent.

Additional trips may occur in the form of delivery vehicles (e.g., FedEx/UPS) used to deliver small packages to the site; however, these deliveries would be infrequent. It is anticipated that O&M staff would drive light-duty trucks, water trucks, and utility vehicles kept at the O&M facilities (not driven off site) to conduct maintenance.

Routine maintenance, and repair or replacement, of Project components are expected to occur. Although routine maintenance could be expected every six months, replacement of larger parts would occur infrequently (EPA 2013). Impacts on traffic during maintenance activities for larger parts would be low due to the few events expected to occur, temporary and only occurring during events, unavoidable due to required maintenance, and local.

Solar Arrays

The solar panels may be cleaned during operations. Water would be carried via 4,000-gallon trucks for about 168 trucks per cleaning event. Each cleaning event would consist of about one week, three times per year. The anticipated number of 35 trucks per day over one week, three times per year, that would be used for the cleaning is substantially less than those used during peak construction and would not result in a significant impact on local roads or traffic conditions.

Impacts from the operation of solar arrays would be low in magnitude, temporary during the cleaning of the solar arrays, probable due to the minor increase of traffic, and local in extent.

Comprehensive Project

During operation, it is expected that traffic conditions similar to those listed under existing conditions would continue to exist. The Project would add 16 to 20 vehicle trips per day to the O&M facilities by O&M staff, with an additional 35 trips per day during periods of panel washing.

Traffic hazards would be minimized by following the U.S. Department of Transportation Pipeline and Hazardous Material Administration regulations related to the shipment of lithium-ion batteries, and following the commitments outlined in Section 4.3.3 of the ASC.

Because there would be minimal O&M staff activity, minimal impacts on traffic and on transportation infrastructure are expected. The Applicant would maintain new access roads during operations. Given the minimal vehicular traffic during Project operations, and as Project facilities would not displace or impede transportation networks, no change is expected to the current movement or circulation of people or goods during operation of the Project. Multipurpose use of existing rights-of-way on existing roads would be maintained during operation of the Project. No multipurpose use of new permanent Project access roads would occur, as private Project access roads would not be open to the public.

Impacts on transportation from the Project operations would be low in magnitude; long term during the life of the Project; probable, due to solar panel washing; and local in spatial extent.

4.14.2.3 Impacts during Decommissioning

After dismantling the facility, high-value components would be removed for recycling or scrap. The remaining materials would be reduced to transportable size and removed from the site for disposal. Unsalvageable materials would be disposed of at authorized sites in accordance with applicable regulations. Prior to decommissioning, the Applicant would consult with WSDOT and Benton County on the development of a Decommissioning-Stage Traffic and Safety Management Plan that may include an updated traffic analysis.

Turbine Option 1

The disassembly and removal of turbines would essentially be the same as their installation, but in reverse order. Turbine tower portions and blades would be sized on site for transport by regular-sized haul trucks (no oversize permits or specialized equipment needed).

Impacts on transportation during decommissioning of turbines under Turbine Option 1 would be low in magnitude due to components being sized appropriately for transport and not requiring oversize permits, short term in duration, unavoidable, and regional in spatial extent due to the dismantled material having to be transported outside of the Lease Boundary and past neighboring receptors, potentially on other rural roads not near the Lease Boundary.

Turbine Option 2

Impacts on transportation during decommissioning of turbines under Turbine Option 2 would be similar to those described for construction under Turbine Option 2. Impacts would be low in magnitude due to components being sized appropriately for transport and not requiring oversize permits, short term in duration, unavoidable, and regional in spatial extent due to the dismantled material having to be transported outside of the Lease Boundary and past neighboring receptors, potentially on other rural roads not near the Lease Boundary.

Solar Arrays

Solar photovoltaic modules used for the Project would be dismantled and packaged per manufacturer or approved recycler specifications and shipped to an approved off-site recycler. Impacts on transportation during decommissioning of solar arrays would be similar to those described for the construction of solar arrays. Impacts would be low in magnitude, short term in duration, unavoidable, and regional in spatial extent due to the increase in traffic having an impact on rural roads near the Lease Boundary.

Battery Energy Storage Systems

Batteries would be recycled if feasible and otherwise transported to an approved disposal facility. Impacts on transportation during decommissioning of BESS would be similar to those described for the construction of BESS. Impacts would be low in magnitude, temporary in duration, probable, and local in spatial extent.

Substations

All aboveground structures associated with the substations, including the conductors, switches, transformers, fencing, and other components, would be dismantled and removed from the site. Impacts on transportation during decommissioning of substations would be similar to those described for the construction of substations. Impacts would be low in magnitude, temporary in duration, probable, and local in spatial extent.

Comprehensive Project

Impacts on transportation during decommissioning of the Project would be similar to those described for the construction of the Project. Impacts would be low in magnitude, short term in duration, unavoidable, and regional in spatial extent.

4.14.2.4 Recommended Mitigation Measures

This section describes the measures that would reduce or compensate for impacts related to traffic from construction, operation, and decommissioning of the Project. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action.

EFSEC has identified the following additional and modified mitigation measures that could be required by EFSEC, but may also involve the participation of other parties, for the Project to avoid and/or minimize potential impacts on

transportation. EFSEC would work with the identified parties to facilitate cooperation in implementing this mitigation measure:

TR-1:[63] The load movement team would review the procedures to be followed if the load should become lodged at a crossing and would review the emergency contact numbers for each crossing daily—that is, before starting travel for the day.

Rationale: Ensures safe practices during the transportation of materials for construction and decommissioning.

TR-2: The Applicant would work with WSDOT and Operation Lifesaver to provide train safety presentations to employees and contractors to increase knowledge regarding train safety, including train track crossings. Since this measure involves action by another agency, it cannot be required by EFSEC and cannot be considered fully effective mitigation for the purpose of this analysis.

Rationale: Lessens potential collisions at train crossings.

TR-3: A third-party engineer would provide a traffic analysis prior to decommissioning. The traffic analysis would evaluate all modes of transportation (e.g., waterways, rail, roads, etc.) used for the movement of people and materials during decommissioning via the haul route(s) in Washington State.

Rationale: Ensures that no changes have occurred since the traffic analysis was originally provided prior to construction.

TR-4: All railroad crossing and grade changes would be included in a route survey performed by a third-party engineer, with the Washington Utilities and Transportation Commission participating, to determine if current traffic control systems at crossings are appropriate or if additional mitigation is needed prior to decommissioning. The route survey would include anticipated traffic counts. Since this measure would require the participation of other agencies before it could be implemented, it cannot be considered fully effective mitigation for the purpose of this analysis.

Rationale: Ensures that no changes have occurred since the route survey was originally provided prior to construction.

TR-5: The analysis of impacts from decommissioning is based on existing laws and regulations at the time when the ASC was submitted to EFSEC. The Applicant would consult with WSDOT and Benton County on the development of a Decommissioning-Stage Traffic and Safety Management Plan, prior to decommissioning. The Traffic and Safety Management Plan must include a safety analysis of the WSDOT-controlled intersections (in conformance with the WSDOT Safety Analysis Guide) and recommend mitigation or countermeasures where appropriate. The analysis would review impacts from decommissioning traffic and be submitted to WSDOT for review and comment prior to decommissioning. Since this measure would require the participation of other agencies before it could be implemented, it cannot be considered fully effective mitigation for the purpose of this analysis. EFSEC would work with the identified agencies to facilitate cooperation in implementing this mitigation measure.

Rationale: Ensures that no changes have occurred to the laws and regulations used in this analysis.

[63] TR-: Identifier of numbered mitigation item for Transportation

TR-6: The Applicant provided a Traffic Impact Analysis (TIA) with the Final ASC (Horse Heaven Wind Farm, LLC 2023). Oversize truck routes to the Project Area were analyzed using I-82, north through State Route 397, Locust Grove Road, and Plymouth Road. Additionally, the delivery of turbine towers was only analyzed from I-82 to the Locust Grove/State Route 397 exit. The use of additional routes for oversize or overweight deliveries would require supplemental analysis and approval by EFSEC.

Rationale: Ensures consistency with state and county transportation plans and codes.

TR-7: Coordinate with WSDOT, Benton County, and EFSEC prior to construction and prior to decommissioning on potential mitigation for intersections with safety concerns. Mitigation may include the installation of warning signs, rumble strips, or other measures to alert motorists of intersections.

Rationale: Ensures safe practices during the transportation of materials for construction and decommissioning.

4.14.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the expected changes that the Applicant was making to the Project made in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)

- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and include the undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[64]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of the Washington State Department of Natural Resources (DNR) Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains similar due to the turbines and other Project infrastructure that remain unchanged. The additional Applicant commitments identified above do not change the impact ratings previously provided for transportation in the Draft EIS, and the impact ratings remain the same.

4.14.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This EIS weighs the potential impacts on transportation that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.14-4a, 4.14-4b,** and **4.14-4c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur in relation to transportation.

[64] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

Table 4.14-4a: Summary of Potential Impacts on Transportation during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vehicular Traffic	Turbine Option 1 Turbine Option 2 **Comprehensive Project**	Traffic volumes would increase measurably during transportation of material and equipment for the construction of the turbines. The potential for traffic volumes and slower, oversized roads would likely decrease level of service for intersections near the Lease Boundary and highways/ freeways. The increase in traffic volumes and the size of construction material may decrease roadway safety at intersections near the Project or on railroad crossings.	Medium	Short Term	Unavoidable	Regional	**TR-1:** Daily transport communication, including emergency numbers **TR-2:** Operation Lifesaver safety presentation and training **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified
Vehicular Traffic	Solar Arrays	Traffic volumes would increase measurably during transportation of material and equipment during the construction of the solar arrays and would likely decrease level of service for intersections near the Lease Boundary. The increase in traffic volumes may decrease roadway safety at intersections near the Project or on railroad crossings.	Medium	Short Term	Unavoidable	Local	**TR-1:** Daily transport communication, including emergency numbers **TR-2:** Operation Lifesaver safety presentation and training **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified
Vehicular Traffic	BESS Substations	Traffic volumes may increase, but a decrease in level of service is not expected, nor is there the potential for roadway safety to decrease.	Low	Temporary	Probable	Local	**TR-1:** Daily transport communication, including emergency numbers **TR-2:** Operation Lifesaver safety presentation and training	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system(s); EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.14-4b: Summary of Potential Impacts on Transportation during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vehicular Traffic	Turbine Option 1 Turbine Option 2 BESS Substations	Maintenance of facilities would include preventive and expected maintenance throughout the operation of the Project.	Low	Temporary	Unavoidable	Local	No mitigation identified	None identified
Vehicular Traffic	Solar Arrays	Operation of the solar arrays may require water trucks to deliver wash water to clean the panels.	Low	Temporary	Probable	Local	No mitigation identified	None identified
Vehicular Traffic	**Comprehensive Project**	A decrease in level of service is not expected, nor is roadway safety expected to decrease.	Low	Long Term	Probable	Local	**TR-2:** Operation Lifesaver safety presentation and training	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system(s); EFSEC = Washington Energy Facility Site Evaluation Council; N/A = Not enough information to provide a separate analysis.

Table 4.14-4c: Summary of Potential Impacts on Transportation during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Vehicular Traffic	Turbine Option 1 Turbine Option 2 Solar Arrays **Comprehensive Project**	Decommissioning would require the removal and transportation of the dismantled pieces of the turbines, expected to be smaller than the pieces that arrived during the Construction Stage. The increase in traffic volumes is not expected to decrease level of service or cause a decline in roadway safety.	Low	Short Term	Unavoidable	Regional	**TR-1:** Daily transport communication, including emergency numbers **TR-2:** Operation Lifesaver safety presentation and training **TR-3:** Traffic Analysis **TR-4:** Railroad crossing and grade change survey **TR-5:** Traffic and Safety Management Plan **TR-6:** Supplemental analysis of additional routes, if proposed **TR-7:** Mitigation for intersections with safety concerns	None identified
Vehicular Traffic	BESS Substations	Decommissioning would require the removal and transportation of the BESS and substations. The increase in traffic volumes is not expected to decrease level of service or cause a decline in roadway safety.	Low	Temporary	Probable	Local	**TR-1:** Daily transport communication, including emergency numbers **TR-2:** Operation Lifesaver safety presentation and training **TR-3:** Traffic Analysis **TR-4:** Railroad crossing and grade change survey **TR-5:** Traffic and Safety Management Plan	None identified

Notes:
[a] The impacts related to each component, including “comprehensive Project,” were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system(s); EFSEC = Washington Energy Facility Site Evaluation Council

4.14.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to transportation from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.15 Public Services and Utilities

This section describes potential impacts on public services and utilities from the proposed Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Public services such as law enforcement, fire protection, emergency management services, and hospitals are evaluated in Section 4.13, Public Health and Safety. Similarly, schools are evaluated as part of Section 4.16, Socioeconomics. Utilities providing public services within the vicinity of the Lease Boundary are identified in Section 3.15. Washington Administrative Code (WAC) 463-60-535(4) requires a review of a proposed facility's impact on utilities.

Section 4.4, Water Resources, evaluates the collection and conveyance of stormwater within the Lease Boundary and Project vicinity. Section 4.7, Energy and Natural Resources, evaluates the supply and demand for electricity and water within the Project vicinity, Benton County, and the State of Washington. Section 4.14, Transportation, evaluates the Project's impact on streets and highways. Section 4.13, Public Health and Safety, evaluates the Project's impact on law enforcement and emergency response agencies. The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and summarized in **Table 4.15-1**.

Table 4.15-1: Impact Rating Table for Public Services and Utilities from Section 4.1

Factor	**Rating** →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Table 4.15-2 describes the intended framework for using the magnitude rankings in the evaluation of impacts on public services and utilities.

Table 4.15-2: Criteria for Assessing Magnitude of Impacts on Public Services and Utilities

Magnitude of Impacts	Description
Negligible	**Level of Service:** Changes in the level of service would be either non-detectable or, if detected, would have no noticeable impact on a public utility's ability to serve its community or customers. **Safety**: The reduction in the level of service would not alter existing risks to human health.
Low	**Level of Service:** Changes in the level of service would be measurable, but the changes would be small and localized and would not inhibit a public utility's ability to serve its community or customers. **Safety:** The reduction in the level of service would not noticeably alter the existing risk to human health or community cohesion.
Medium	**Level of Service:** Changes in the level of service would be measurable and would interrupt the public's use of the utility and resource. **Safety:** The reduction in the level of service would increase risks to human health; however, fatalities would not be expected to occur and community cohesion would remain unchanged.
High	**Level of Service:** Changes in resource availability would be readily measurable and would have substantial consequences on local or regional populations. **Safety:** The reduction in the level of service would cause an increased risk to human health that could result in fatality, and a breakdown of community cohesion would be noticeable.

4.15.1 Method of Analysis

For this discussion, the Project's impact on public services and utilities is evaluated through an analysis of sewage and solid waste collection and treatment. Horse Heaven Wind Farm, LLC's (Applicant) Application for Site Certification (ASC) presents information on potential waste streams and disposal options for the Project's construction, operations, and decommissioning stages. An adverse impact on sewage and solid waste management would occur if the Project would cause one of the following scenarios:

- Violation of an existing regulation
- Decrease in the existing level of service provided by a utility
- Decrease in the capacity of a utility to service its community

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in Appendix A (Decommissioning Plan) of the ASC (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on public services and utilities are discussed in Section 2.1.3 and summarized below.

- Turbine blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks.
- Turbines would be refurbished and resold or recycled.

- All recyclable materials such as copper wiring or other metals would be transported to approved locations for recycling.
- Clean concrete[65] would be crushed and disposed of offsite and/or recycled and reused on site or off site.
- Modules would be dismantled and packaged per manufacturer or approved recycler specifications and shipped to an approved off-site recycler.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.15.2.5, Post-Adjudication Applicant Commitments.

Planning Analysis

A consistency determination summarizes whether a proposed action would be undertaken in a manner that is consistent with enforceable policies of a government-approved management program. **Table 4.15-3** presents a comparison of the Project and the relevant goals and policies of the Benton County Comprehensive Plan's utilities element (UE) and the 2013 Update Benton County Solid Waste and Moderate Risk Waste Plan (referred to herein as the Benton County Plans) (Benton County 2014, 2022).

Table 4.15-3: Comparison of the Project with Benton County Plans

Applicable Plan	Goal/Policy	Analysis
Benton County Comprehensive Plan	**UE Goal 1**: Ensure utilities support the land use and economic development goals of the County	It is anticipated that the Project would be consistent with UE Goal 1 as it is in alignment with the following Benton County land use and economic development goals: ▪ Land Use Goal 5: Identify the location, site planning, and density of new non-farm development outside of UGAs to protect existing agriculture from incompatible adjacent land uses. ▪ Land Use Goal 5 Policy 1: Establish compatible land uses adjacent to areas designated as GMA Agriculture to minimize conflicts associated with farm activities such as spray, dust, noise, odors, and liability. ▪ Economic Development Goal 2: Expand employment opportunities in unincorporated Benton County.
Benton County Comprehensive Plan	**UE Goal 2**: Maintain public and private household water and sewer systems that are consistent with the rural character of the County	It is anticipated that the Project would be consistent with UE Goal 2 as wastewater from the Project's O&M facilities would be discharged to an on-site septic system. The Benton-Franklin Health District is responsible for permitting, overseeing the design and installation of, and inspecting septic systems with wastewater flows less than 3,500 gallons per day. For wastewater flows more than 3,500 gallons, the Applicant would have to obtain approval from the Washington State Department of Health.

[65]Contain an aggregated weight of less than 1 percent of adherent fines, vegetable matter, plastics, plaster, paper, gypsum board, metals, fabrics, wood, tile, glass, asphalt (bituminous) materials, brick, porcelain or other deleterious substance(s) not otherwise noted. Be free of components such as chlorides and reactive materials that are detrimental to the concrete, unless mitigation measures are taken to prevent recurrence in the new concrete (WSDOT 2022).

Table 4.15-3: Comparison of the Project with Benton County Plans

Applicable Plan	Goal/Policy	Analysis
Benton County Comprehensive Plan	**UE Goal 3**: Facilitate efficiency in utility land use and development	It is anticipated that the Project would be consistent with UE Goal 3 as most of the proposed transmission line route occurs on private property, where ongoing agricultural activity would occur along the corridors. Proposed transmission lines would be located adjacent and parallel to existing public road right-of-way where possible. The Project's transmission line corridor would accommodate multiple land uses, including utilities and agricultural uses. The eastern Project substation would be located adjacent to the BPA proposed Bofer Canyon substation, thereby eliminating the need for new transmission lines at this location.
Benton County Comprehensive Plan	**UE Goal 3 Policy 2**: Encourage multiple uses, including passive recreational use, in utility corridors where practical	It is anticipated that the Project would be consistent with UE Goal 3 Policy 2 as passive recreational uses within the proposed transmission line corridor would be possible on DNR land where practical. Additionally, the right-of-way for the transmission line would not be fenced.
Benton County Comprehensive Plan	**UE Goal 3 Policy 3**: Facilitate maintenance and rehabilitation of existing utility systems and facilities and encourage the use of existing transmission/distribution corridors	It is anticipated that the Project would be consistent with UE Goal 3 Policy 3 as the eastern Project substation has been located adjacent to BPA's proposed Bofer Canyon substation, thereby eliminating the need for new transmission lines at this location. Proposed transmission lines would be located adjacent to and parallel existing public road right-of-way where possible.
Benton County Comprehensive Plan	**UE Goal 4**: Develop and adopt provisions as necessary that support future demand for alternative energy vehicles.	It is anticipated that the Project would be consistent with UE Goal 4 as it would not prevent or discourage the support of alternative energy vehicles.
Benton County Comprehensive Plan	**UE Goal 4 Policy 1**: Permit electric vehicle charging stations equipped with slow and medium speed charging equipment as an accessory or ancillary use to any principal use in all zoning districts.	It is anticipated that the Project would be consistent with UE Goal 4 Policy 1 as the project would not prevent Benton County from permitting the installation of charging stations equipped with slow and medium speed charging equipment in districts zoned Growth Management Act Agricultural.

Table 4.15-3: Comparison of the Project with Benton County Plans

Applicable Plan	Goal/Policy	Analysis
Benton County Comprehensive Plan	**UE Goal 4 Policy 2**: Allow electric vehicle "rapid charging stations" designation in commercial, industrial, and agricultural zones as regulated in the zoning code and exclude in areas identified as critical resource areas.	It is anticipated that the Project would be consistent with UE Goal 4 Policy 2 as it would not prevent Benton County from permitting the installation of rapid charging stations in districts zoned Growth Management Act Agricultural.
2013 Benton County Solid Waste and Moderate Risk Waste Plan	**Goal #2**: Continue developing solid waste programs and projects that promote and maintain a high level of public health and safety which protects the human and natural environment of Benton County	It is anticipated that the Project would be consistent with Goal 2 as the Applicant's ASC states that any oily waste, rags, or dirty or hazardous solid waste would be collected in sealable drums at the construction yards, to be removed for recycling or disposal by a licensed contractor. During operation, there would be no substantial quantities of fuels, oils, or chemicals on site, except as contained in qualified oil-filled equipment, including the turbine gearboxes, substation transformers, and inverter station transformers within the solar array, and the sulfuric acid contained in the lead-acid batteries.
2013 Benton County Solid Waste and Moderate Risk Waste Plan	**Goal #3**: Manage solid wastes in a manner that promotes, in order of priority: waste reduction, reuse, and recycling, with source separation of recyclables as the preferred method	It is anticipated that the Project would be consistent with Goal #3 as the Applicant's ASC states that operation and maintenance of the Project is expected to generate approximately one or two dumpsters of waste per week at the O&M facilities. All waste would be stored within designated temporary waste collection areas until it is collected for transport to an approved landfill. Materials that can be recycled would be stored and transported separately.

Sources: Benton County 2014, 2022; Horse Heaven Wind Farm, LLC 2022
Applicant = Horse Heaven Wind Farm, LLC; ASC = Application for Site Certification; BPA = Bonneville Power Administration; DNR = Washington State Department of Natural Resources; GMA = Growth Management Act; O&M = Operations and Maintenance; UE = utilities element; UGA = urban growth area

Available Capacity

The Project's construction, operations, and decommissioning stages would increase demand for sewage treatment and solid waste disposal services in Benton County. **Table 4.15-4** shows the waste streams that would be generated within the Lease Boundary and Benton County's capacity to accommodate Project-generated increases in sewage and solid waste disposal.

4.15.2 Impacts of Proposed Action

This subsection evaluates potential impacts from the construction, operations, and decommissioning stages of the Project on sewage and solid waste treatment facilities and waste management plans. The discussion of direct impacts on sewage and solid waste treatment facilities focuses primarily on the service providers' ability to accommodate increased demand throughout the Project's lifecycle.

As noted in Section 3.15, several companies supply local, long-distance, and cellular telecommunications service in Benton County. Similarly, several companies provide television and internet services throughout the county. As a result of the abundance of available telecommunications options, it is anticipated that the Project would have no impact on the level of service provided to Benton County's homes and businesses.

Indirect impacts on the collection and treatment of sewage and solid waste are not anticipated because the Project is not expected to substantially induce regional growth (Horse Heaven Wind Farm, LLC 2022). For instance, the projected on-site workforce for the operations stage of the Project is expected to be 16 to 20 full-time employees.

Table 4.15-4: Summary of Waste Streams within the Lease Boundary

Waste Stream	Project Stage	Project Requirements	Disposal Capacity
Sewage and Wastewater	Construction	Construction workers would generate additional quantities of sewage from the use of temporary accommodations.	Sewage would be removed by a licensed hauler and disposed of at an existing municipal sewage treatment facility or otherwise disposed of in accordance with applicable state and local laws and regulations. For instance, of the multiple disposal options that exist within Benton and Franklin Counties, the Kennewick Wastewater Treatment Plant alone receives 5.35 million gallons per day of wastewater per day.
	Operations	Less than 5,000 gallons per day for kitchen and bathroom use.	Wastewater from the O&M facilities would be discharged to an on-site septic system[(a)]
	Decommissioning	Construction workers would generate additional quantities of sewage from the use of temporary accommodations.	Sewage would be removed by a licensed hauler and disposed of at an existing municipal sewage treatment facility or otherwise disposed of in accordance with applicable state and local laws and regulations.
Industrial Wastewater	Construction and Operations	The Project would not generate industrial wastewater.	Not Applicable
Municipal Solid Waste (MSW)	Construction	The Project's construction would involve disposal of various quantities of non-hazardous construction wastes, including wood, concrete, plastics, metal, glass, insulation, and paper products.	Columbia Ridge Landfill has a permitted remaining capacity of approximately 329 million tons; Finley Buttes Landfill has an estimated available fill capacity of approximately 130 million tons of MSW.
	Operations	Operation and maintenance of the Project is expected to generate approximately one or two dumpsters of non-hazardous waste per week at the O&M facilities.	
	Decommissioning	Various quantities of non-hazardous decommissioning wastes, including wood, concrete, plastics, metal, glass, insulation, and paper products.	

Table 4.15-4: Summary of Waste Streams within the Lease Boundary

Waste Stream	Project Stage	Project Requirements	Disposal Capacity
Energy Storage Batteries[(b)]	Operations	Final design would determine the required number of lithium-ion batteries necessary to construct the facility's BESS. Lithium-ion batteries have a typical lifespan of 5 to 10 years and will experience a gradual degradation of performance over that time.	
	Decommissioning	Based on the BESS design requirements.	

Sources: Clark County 2015; Waste Management 2019; Benton County 2021; Horse Heaven Wind Farm, LLC 2022

(a) The Application for Site Certification does not provide an exact amount that would be discharged to the on-site septic system but stated that it would be less than 5,000 gallons per day.

(b) The Applicant has not yet chosen the specific type or manufacturer of the energy storage batteries and related equipment nor made a commitment to repurpose or recycle the BESS. BESS can either be repurposed for second-life uses or can be sent back to the original manufacturer or a licensed recycler to recover precious metals and other materials (Taylor et al. 2021).

BESS = battery energy storage facility; MSW = municipal solid waste; O&M = operations and maintenance

4.15.2.1 Impacts during Construction

The temporary increase in population during construction would generate additional quantities of wastewater from the use of temporary accommodations. The ASC states that temporary portable sanitary facilities provided for construction crews would be adequate to support expected on-site personnel and would be removed at completion of construction activities. Wastewater generated in association with these facilities would be periodically removed by a licensed hauler and disposed of at an existing municipal sewage treatment facility or otherwise disposed of in accordance with applicable state and local laws and regulations (Horse Heaven Wind Farm, LLC 2022).

Project construction typically generates a variety of non-hazardous construction wastes, including wood, concrete, plastics, metal, glass, insulation, and paper products. Concrete that accumulates in the concrete washout area, along with any other material not suitable to be left in place, would be allowed to harden and then removed from the site. Additional construction wastes would include erosion control materials, such as straw bales and silt fencing, and electrical equipment.

Turbine Option 1

Construction activities under Turbine Option 1 would result in a low, short-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on municipal solid waste (MSW) management. The permanent disposal of MSW in a managed landfill would represent a duration ranking of "constant." The following summarizes Project conditions that would impact wastewater flows generated during construction under Turbine Option 1:

- The Applicant anticipates that the maximum on-site workforce throughout the duration of the construction stage would be 467 temporary employees.
- The Applicant estimates that the Project's construction workforce would consist of 60 percent local hires.
- The Washington State Department of Health states that the typical person in the United States generates an average daily wastewater flow of approximately 50 to 70 gallons (Washington State Department of Health 2002).
  - Based on the typical person's average daily waste flow, the maximum amount of wastewater flows generated during the Project's construction stage would be less than 32,690 gallons.
- For comparison, the Kennewick Wastewater Treatment Plant receives 5.35 million gallons of wastewater per day.
- Because 60 percent of the construction workforce would be sourced locally, the waste quantities stated in the region's waste management plans would include those generated by most of the Project's workforce.

As noted in **Table 4.15-4**, solid waste from the Project's construction would consist of various quantities of non-hazardous construction wastes. The landfills identified in the ASC maintain substantial capacity that would be sufficient to serve the Project and the region, simultaneously. A typical weight allowance for an 8-yard dumpster is 1,800 lbs. or 0.9 tons (Waste Management 2023). If the Project's Operations and Management facility fills up to 2 dumpsters per week, the Proposed Action would only produce 93.6 tons of MSW per year. For comparison, Benton County is expected to generate 326,505 tons of MSW in 2025.

An impact on human health and wellbeing could occur if the construction of Turbine Option 1 limited the availability of potable water to surrounding communities or reduces a community's ability to manage wastewater or MSW. During the construction of Turbine Option 1, existing infrastructure (e.g., water treatment facilities, sewer systems, and landfills) and regulations governing the disposal of wastewater and MSW would minimize impacts from the use of water, production of wastewater, and disposal of MSW to human health and well being. Impacts on safety would result in a negligible, temporary to constant, unlikely, limited to regional impact.

Turbine Option 2

Construction activities under Turbine Option 2 would result in a low, short-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact MSW management. Impacts on wastewater and MSW management resulting from construction under Turbine Option 2 would be similar to those presented for Turbine Option 1. Impacts from the use of water and generation of wastewater and MSW to human health and wellbeing during the construction of Turbine Option 2 would be similar to those presented for Turbine Option 1. Impacts on human health and wellbeing would result in a negligible, temporary to constant, unlikely, limited to regional impact.

Solar Arrays

Construction activities for the solar arrays would result in a low, short-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional MSW management. Impacts on wastewater and MSW management resulting from construction of solar arrays would be similar to those presented for Turbine Option 1. Impacts from the use of water and generation of wastewater and MSW to human health and wellbeing during the construction of solar arrays would be similar to those presented for Turbine Option 1. Impacts on human health and wellbeing would result in a negligible, temporary to constant, unlikely, limited to regional impact.

Battery Energy Storage Systems

Construction activities for battery energy storage systems (BESS) would result in a low, short-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management. Impacts on wastewater and MSW management resulting from construction of BESS would be similar to those presented for Turbine Option 1. Impacts from the use of water and generation of wastewater and MSW to human health and wellbeing during the construction of BESS would be similar to those presented for Turbine Option 1. Impacts on human health and wellbeing would result in a negligible, temporary to constant, unlikely, limited to regional impact.

Substations

Construction activities for substations would result in a low, short-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact MSW management. Impacts on wastewater and MSW management resulting from construction of substations would be similar to those presented for Turbine Option 1. Impacts from the use of water and generation of wastewater and MSW to human health and wellbeing during the construction of substations would be similar to those presented for Turbine Option 1. Impacts on human health and wellbeing would result in a negligible, temporary to constant, unlikely, limited to regional impact.

Comprehensive Project

Construction activities for the comprehensive Project would result in a low, short-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management. Impacts on

wastewater and MSW management resulting from construction of the comprehensive Project would be similar to those presented for Turbine Option 1. Impacts from the use of water and generation of wastewater and MSW to human health and wellbeing during the construction of the comprehensive Project would be similar to those presented for Turbine Option 1. Impacts on human health and wellbeing would result in a negligible, temporary to constant, unlikely, limited to regional impact.

4.15.2.2 Impacts during Operation

The on-site workforce for the operations stage of the Project is estimated to be between 16 and 20 full-time employees. Wastewater from the O&M facilities would be discharged to an on-site septic system. It is anticipated that the operations stage would use less than 5,000 gallons of water per day and that wastewater would be generated from kitchen and bathroom use.

Operation of the Project is expected to generate approximately one or two dumpsters of waste per week at the O&M facilities. All waste would be stored within designated temporary waste collection areas until it is collected for transport to an approved landfill. Materials that can be recycled would be stored and transported separately.

Turbine Option 1

It is anticipated that operation of the turbines under Turbine Option 1 would have a low, long-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management during the Project's operations stage. It is anticipated that O&M facilities that would support turbine operations under Turbine Option 1 would use less than 5,000 gallons of water per day for kitchen and bathroom use. Wastewater associated with turbine operation under Turbine Option 1 would be discharged to an on-site septic system. The Benton-Franklin Health District is responsible for permitting, overseeing the design and installation of, and inspecting on-site septic systems with wastewater flows less than 3,500 gallons per day. For wastewater flows of more than 3,500 gallons, the Applicant would have to obtain approval from the Washington State Department of Health. Operation of the Project is expected to generate approximately one or two dumpsters of waste per week at the O&M facilities.

Turbine Option 2

O&M activities under Turbine Option 2 would result in a low, long-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management. Impacts on wastewater and MSW management resulting from turbine operations under Turbine Option 2 would be similar to those presented for Turbine Option 1.

Solar Arrays

O&M activities for the solar arrays would result in a low, long-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management. Impacts on wastewater and MSW management resulting from operation of the solar arrays would be similar to those presented for Turbine Option 1. Solar modules would be washed once per year during operations. Water used for solar panel washing would be allowed to infiltrate into the ground. The Applicant has not proposed treatment for solar panel wash water.

Battery Energy Storage Systems

Impacts on wastewater and MSW management resulting from operation of the BESS would be similar to those presented for Turbine Option 1. O&M activities for the BESS would result in a low, long-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management.

Substations

Impacts from substations to wastewater and MSW management would be similar to those presented for Turbine Option 1. O&M activities for the substations would result in a low, long-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management.

Comprehensive Project

Combined impacts on wastewater and MSW management resulting from operation of all Project components would be similar to those presented for Turbine Option 1. O&M activities for the comprehensive Project would result in a low, long-term, unavoidable, local impact on wastewater and a low, constant, unavoidable, local to regional impact on MSW management.

4.15.2.3 Impacts during Decommissioning

Decommissioning would be performed in accordance with the Washington Energy Facility Site Evaluation Council (EFSEC) rules and prior Site Certification Agreements and would comprise of dismantling and removing aboveground improvements, including turbines and solar modules, step-up transformers, substations, BESS, overhead generator tie lines and support structures, control hardware, and meteorological towers. Foundations would be removed to a level of no less than 3 feet below the surface of the ground unless requested to be maintained by the landowner. Cables, lines, and conduit that are buried more than 3 feet below grade may be abandoned in place.

As part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center. Unsalvageable material would be reduced to a transportable size and removed from the site and permanently disposed of in accordance with local, state, and federal solid waste regulations.

Turbine Option 1

Impacts on wastewater during decommissioning of turbines under Turbine Option 1 would be similar to those described for construction under Turbine Option 1. Decommissioning activities under Turbine Option 1 would result in a low, short-term, unavoidable, local impact on wastewater management. Demolition workers would each generate 50 to 70 gallons of wastewater per day that would require collection and disposal. Decommissioning activities under Turbine Option 1 would result in a low, constant, unavoidable, local to regional impact on MSW management. Generation and disposal of solid waste during the decommissioning stage for turbines under Turbine Option 1 would comprise the following:

- The blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks.
- Turbines would be refurbished and resold or recycled.
- Turbine foundations would be removed to a depth of not less than 3 feet.
  - The concrete would be reduced in size by excavator attachments and transported for disposal off site.
- The meteorological towers would also be removed in a fashion similar to the turbines.
- Any geotextile fabric encountered during demolition would be taken to an approved landfill.
- All underground collection lines buried above not less than 3 feet below the surface would be removed.

  - The cables would be cut into manageable sections and removed from the site.
  - All recyclable materials such as copper wiring or other metals would be transported to approved locations for recycling.
- Pad-mounted transformers would be hauled off site for disposal.
- Concrete pads would be reduced in size by excavator attachments and transported for disposal off site.

As shown in **Table 4.15-4**, the ASC has identified landfills that have permitted lifespans greater than the estimated 35-year operations stage of the Project. Additionally, the landfills have a projected capacity sufficient to receive solid waste generated during the decommissioning stage of Turbine Option 1.

Turbine Option 2

Impacts on wastewater and MSW management from the decommissioning of turbines under Turbine Option 2 would be similar to those presented for Turbine Option 1. Decommissioning activities under Turbine Option 2 would result in a low, short-term, unavoidable, local impact on wastewater management. Decommissioning activities under Turbine Option 2 would result in a low, constant, unavoidable, local to regional impact on MSW management.

Solar Arrays

Decommissioning activities for the solar arrays would result in a low, short-term, unavoidable, local impact on wastewater management. Decommissioning activities for solar arrays would result in a low, constant, unavoidable, local to regional impact on MSW management. Generation and disposal of solid waste during the decommissioning stage for the solar array infrastructure are described below:

- The panels used in the Project would contain silicon, glass, and aluminum, which are recyclable. Modules would be dismantled and packaged per manufacturer or approved recycler specifications and shipped to an approved off-site recycler.
- Control cabinets, electronic components, and internal cables would be removed as part of the decommissioning stage. The panels, racks, and inverters would be transported whole for reconditioning and reuse or disassembled or cut into more easily transportable sections for salvageable, recyclable, or disposable components.
- Pads would be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and concrete to a depth of not less than 3 feet below grade.
  - The cables would be cut into manageable sections and removed from the site.
  - All recyclable materials such as copper wiring or other metals would be transported to approved locations for recycling.
  - All wire would be sent to an approved recycling facility.
- Concrete slabs used as equipment pads would be broken and removed to a depth of not less than 3 feet below grade. Clean concrete would be crushed and disposed of off site and/or recycled and reused on site or off site.

- All racking and fencing material would be broken down into manageable units, removed from the facility, and sent to an approved recycler.

As shown in **Table 4.15-4**, the ASC has identified landfills that have permitted lifespans greater than the estimated 35-year operations stage of the Project. Additionally, the landfills have a projected capacity sufficient to receive solid waste generated during the decommissioning stage of the solar arrays.

Battery Energy Storage Systems

Decommissioning activities for the BESS would result in a low, short-term, unavoidable, local impact on wastewater management. Decommissioning activities for BESS would result in a low, constant, unavoidable, local to regional impact on MSW management. Generation and disposal of solid waste during the decommissioning stage for the BESS infrastructure are described below:

- All aboveground structures, including the conductors, switches, transformers, fencing, and other components, would be dismantled and removed from the site.
- All recyclable materials such as copper wiring or other metals would be transported to approved locations for recycling.
- Batteries would be recycled if feasible and otherwise would be transported to an approved disposal facility.
- Concrete slabs used as equipment pads would be broken and removed to a depth of not less than 3 feet below grade. Clean concrete would be crushed and disposed of off site and/or recycled and reused on or off site.

As shown in **Table 4.15-4**, the ASC has identified landfills that have permitted lifespans greater than the estimated 35-year operations stage of the Project. Additionally, the landfills have a projected capacity sufficient to receive solid waste generated during the decommissioning stage of the BESS.

Substations

Decommissioning activities for the substations would result in a low, short-term, unavoidable, local impact on wastewater management. Decommissioning activities for substations would result in a low, constant, unavoidable, local to regional impact on MSW management. Generation and disposal of solid waste during the decommissioning stage for substations are described below:

- Conductors, switches, transformers, fencing, and other components would be dismantled and removed from the site.
- All recyclable materials such as copper wiring or other metals would be transported to approved locations for recycling. All wire would be sent to an approved recycling facility.
- Concrete slabs used as equipment pads would be broken and removed to a depth of not less than 3 feet below grade. Clean concrete would be crushed and disposed of off site and/or recycled and reused on site or off site.

As shown in **Table 4.15-4**, the ASC has identified landfills that have permitted lifespans greater than the estimated 35-year operations stage of the Project. Additionally, the landfills have a projected capacity sufficient to receive solid waste generated during the decommissioning stage of the substations.

Comprehensive Project

Impacts on wastewater and MSW management from decommissioning of the comprehensive Project would be similar to those presented for each component. Decommissioning activities for the comprehensive Project would result in a low, short-term, unavoidable, local impact on wastewater management. Decommissioning activities for the comprehensive Project would result in a low, constant, unavoidable, local to regional impact on MSW management.

4.15.2.4 Recommended Mitigation Measures

This section describes the measures that would reduce or compensate for impacts related to public services and utilities from construction, operation, and decommissioning of the Project. These measures would be implemented in addition to compliance with the environmental permits, plans, and authorizations required for the Proposed Action.

Section 4.7 (Energy and Natural Resources) presents a list of recommended mitigation measures that would apply to decommissioning impacts on public services and utilities resulting from the Project:

ENR-5:[66] The Applicant would capture and recycle wash water to reduce the Project's water requirements during the operations stage.

Rationale: This mitigation measure reduces the Project's demands on water resources.

ENR-7: To minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.

Rationale: This mitigation measure reduces the Project's demands on natural resources as well as, reduces the amount of solid waste that would go into the area's landfills.

Additionally, EFSEC has identified the following mitigation measure that addresses the disposal of non-recyclable project components:

PSU-1:[67] To address the potential for the inappropriate disposal of Project waste, the Applicant would dispose of all non-recyclable Project components in an appropriately licensed waste disposal facility.

Rationale: This mitigation measure prevents disposal of Project-related wastes in inappropriate landfills or unauthorized facilities.

4.15.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-

[66] ENR-: Identifier of numbered mitigation item for Energy and Natural Resources, as described in Section 4.7

[67] PSU-: Identifier of numbered mitigation item for Public Services and Utilities

recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes, and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and consider underground of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[68]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS

[68] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remain. The additional Applicant commitments identified above do not change the impact ratings previously provided for public services and utilities in the Draft EIS, and the impact ratings remain the same.

4.15.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn, depend on the magnitude and duration of an impact. “Significant” in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

This Environmental Impact Statement weighs the potential impacts on public services and utilities that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.15-5a, 4.15-5b, and 4.15-5c**. As shown in the impact summary tables below, EFSEC has determined that no significant unavoidable adverse impacts would occur to public services and utilities.

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Table 4.15-5a: Summary of Potential Impacts on Public Services and Utilities during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wastewater (Level of Service and Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The amount of wastewater produced from the maximum number of temporary workers on site (467), while measurable, would not impact the ability of the local utility to treat the community's sewage.	Low	Short Term	Unavoidable	Local	No mitigation identified	None identified
Municipal Solid Waste (Level of Service)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Solid waste from the Project's construction would consist of various quantities of non-hazardous construction wastes. The landfills identified in the ASC maintain substantial capacity that would be sufficient to serve the Project and the region, simultaneously.	Low	Constant	Unavoidable	Local to Regional (depending on location of landfill)	**ENR-7:** Recycle all applicable components **PSU-1:** Use of a licensed waste disposal facility	None identified
Potable Water (Level of Service and Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The impact on human health and wellbeing would result from a reduction in potable water in the surrounding community or the capability to manage wastewater and construction debris.	Negligible	Temporary (accident) Constant (storage)	Unlikely	Limited to Regional (depending on location of disposal facility)	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
ASC = Application for Site Certification; BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.15-5b: Summary of Potential Impacts on Public Services and Utilities during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wastewater (Level of Service and Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Wastewater from the O&M facilities would be discharged to an on-site septic system. It is anticipated that the operations stage would use less than 5,000 gallons of water per day and that wastewater would be generated from kitchen and bathroom use.	Low	Long Term	Unavoidable	Local	**ENR-5:** Capture and recycle wash water	None identified
Municipal Solid Waste (Level of Service)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Operation of the Project is expected to generate approximately one or two dumpsters of waste per week at the O&M facilities.	Low	Constant	Unavoidable	Local to Regional (depending on location of landfill)	**PSU-1:** Use of a licensed waste disposal facility	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; O&M = operations and maintenance

Table 4.15-5c: Summary of Potential Impacts on Public Services and Utilities during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Wastewater (Level of Service and Safety)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The amount of wastewater produced from the temporary workers on site, while measurable, would not impact the ability of the local utility to treat the community's sewage.	Low	Short Term	Unavoidable	Local	No mitigation identified	None identified
Municipal Solid Waste (Level of Service)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	After dismantling of the facility, high-value components would be removed for scrap value. The remaining materials would be reduced to transportable size and removed from the site for disposal. Existing facilities would maintain capacity to receive the Project's non-recyclable waste and continue to serve their communities.	Low	Constant	Unavoidable	Local to Regional	**ENR-7**: Recycle all applicable components **PSU-1**: Use of a licensed waste disposal facility	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

4.15.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to public services and utilities from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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4.16 Socioeconomics

This section describes potential impacts on socioeconomics from the proposed Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Under Washington Administrative Code (WAC) 197-11-448, socioeconomics includes the general welfare, social, and economic conditions that contribute to an area's quality of life. Section 3.16 describes the existing socioeconomic conditions within the vicinity of the Project and within a 1-hour commute of the Lease Boundary. The Project vicinity includes the areas 4 miles south/southwest of the City of Kennewick, Washington, and the larger Tri-Cities urban area along the Columbia River. The study area for socioeconomics includes the area within the Lease Boundary and the populations of Benton, Franklin, Walla Walla, and Yakima Counties.

Sections 3.13 and 4.13, Public Health and Safety focus on the availability of public service agencies and medical facilities (e.g., law enforcement, fire protection, and medical emergency services) within the vicinity of the Lease Boundary. Sections 3.15 and 4.15, Public Services and Utilities focus on utilities that serve the Project vicinity. The qualitative evaluation presented herein relies on the impact scale defined in Section 4.1 and summarized in **Table 4.16-1**.

Table 4.16-1: Impact Rating Table for Socioeconomics from Section 4.1

Factor	Rating →			
Magnitude	**Negligible** indistinguishable from the background	**Low** small impact, non-sensitive receptor(s)	**Medium** intermediate impact, may occur on sensitive receptor(s) or affect public health and safety	**High** large impact on sensitive receptor(s) or affecting public health and safety
Duration	**Temporary** infrequently during any stage	**Short Term** duration of construction or site restoration	**Long Term** during operation or operation plus another stage of Project	**Constant** during life of Project and/or beyond the Project
Likelihood	**Unlikely** not expected to occur	**Feasible** may occur	**Probable** expected to occur	**Unavoidable** inevitable
Spatial Extent/Setting	**Limited** small area of Lease Boundary or beyond Lease Boundary if duration is temporary	**Confined** within Lease Boundary	**Local** beyond Lease Boundary to neighboring receptors	**Regional** beyond neighboring receptors

Table 4.16-2 defines the qualitative framework used herein to rank the magnitude impact. **Table 4.16-2** presents impact magnitude in reference to the three indicators of socioeconomics identified in WAC 197-11-448 as well as a magnitude ranking of environmental justice concerns that could arise from socioeconomic impacts that would disproportionately affect people of color or low-income communities.

Table 4.16-2: Criteria for Assessing Magnitude of Impacts on Socioeconomics

Magnitude of Impacts	Description
Negligible	**General Welfare:**[(a)] No noticeable or quantifiable change in the health, peace, morality, or safety of the study area's residents. **Social Conditions:**[(b)] No noticeable or quantifiable change in healthcare, empowerment, housing, or other programs geared toward assisting the poor, unemployed, and marginalized in society. **Economic Environment:**[(c)] No noticeable or quantifiable change in the external economic factors that influence buying habits of consumers and businesses and therefore affect economic performance locally. **Environmental Justice:** No noticeable impact or quantifiable change in the general welfare, social conditions, or economic environment of people of color or low-income communities.
Low	**General Welfare:** Adverse changes in the health, peace, morality, or safety of the study area's residents would be small and within applicable regulatory standards. **Social Conditions:** Small but measurable adverse changes in healthcare, empowerment, housing, or other programs geared toward assisting the poor, unemployed, and marginalized in society. **Economic Environment:** A reduction in the external economic factors that influence buying habits of consumers and businesses would be small but quantifiable and therefore adversely affect economic performance locally. **Environmental Justice:** Small adverse changes in the general welfare, social conditions, or economic environment of people of color or low-income communities, but their health, safety, and economic security would not be harmed more so than surrounding non-EJ populations.
Medium	**General Welfare:** Adverse changes in the health, peace, morality, or safety of the study area's residents would be intermediate. **Social Conditions:** Intermediate adverse changes in healthcare, empowerment, housing, or other programs geared toward assisting the poor, unemployed, and marginalized in society from historic or existing conditions. **Economic Environment:** Intermediate reduction in the external economic factors that have historically influenced buying habits of consumers and businesses and therefore affect the economic performance locally. **Environmental Justice:** Adverse intermediate changes in the general welfare, social conditions, and economic environment of people of color or low-income communities would occur. Adverse impacts on specific conditions or services may impact people of color and low-income communities more than surrounding non-EJ populations.

Table 4.16-2: Criteria for Assessing Magnitude of Impacts on Socioeconomics

Magnitude of Impacts	Description
High	**General Welfare:** Meaningful decrease in the health, peace, morality, or safety of the study area's residents. **Social Conditions:** Meaningful decrease in healthcare, empowerment, housing, or other programs geared toward assisting the poor, unemployed, and marginalized in society. **Economic Environment:** Meaningful reduction in the external economic factors that influence buying habits of consumers and businesses and therefore affect the performance of the study area. **Environmental Justice:** Low-income and people of color communities would experience meaningful changes in their general welfare, social conditions, or economic environment. Low-income and people of color communities would disproportionately experience adverse changes to their health, safety, or economic security when compared to surrounding non-EJ populations.

Sources:
(a) U.S. Congress n.d.
(b) U.S. Department of Health and Human Services n.d.
(c) Business Development Bank of Canada n.d.

4.16.1 Method of Analysis

This evaluation of socioeconomics is based on existing conditions data that describe the general welfare, social, and economic conditions of the study area and the economic impact analysis presented in Section 3.16 and in the 2022 Application for Site Certification (ASC) for the Project's construction and operations stages. Potential impacts on socioeconomics from the decommissioning stage are estimated based on the economic impact analysis for the construction and operations stages presented in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022).

This evaluation of socioeconomics analyses potential impacts from the Proposed Action in the context of the example phased approach to construction presented by Horse Heaven Wind Farm, LLC (Applicant):

This Environmental Impact Statement (EIS) considers the impact of the Project as a whole. To align the impact rating system described by the Applicant's socioeconomics impact analysis in the 2022 ASC, this evaluation of impacts to socioeconomics analyzes potential impacts from the Proposed Action in the context of the Applicant's example of a phased approach to construction:

- Phase 1 construction could generate power via wind and solar. Phase 1 could also include a battery energy storage system (BESS) capable of storing energy.
- Phase 2 construction is divided into Phase 2a and Phase 2b, summarized as follows:
  - Phase 2a could consist of the construction of both wind and solar facilities. The Applicant's Phase 2a scenario also includes the construction of a BESS.
  - Phase 2b could increase power generation via the construction of additional wind turbines, but construction would not include a BESS.

Chapter 2 contains more information on the Applicant's example of a phased approach to construction. The construction schedule, including phasing of specific elements of the Project, could alter the details of the analysis.

Applicant Commitments

The Applicant has identified measures and/or best practices that are designed to prevent or minimize potential impacts on the affected environment for the Project. Measures presented by the Applicant in the 2022 ASC (Horse Heaven Wind Farm, LLC 2022) and taken into consideration in the characterization of potential impacts on socioeconomics are discussed in Section 2.1.3 and listed below.

- Applicable commitment measures outlined in Sections 4.3, Air Quality; 4.10, Visual Aspects, Light and Glare, 4.11, Noise and Vibration and; and 4.14, Transportation.
- The Applicant intends to develop the Project under a community workforce agreement or project labor agreement; however, reserves the right to use non-organized labor, if necessary.

Post-adjudication Applicant commitments were identified and finalized in the Applicant's Final ASC (Horse Heaven Wind Farm, LLC. 2023). The changes to impact ratings due to these additional Applicant commitments are discussed in Section 4.16.2.5, Post-Adjudication Applicant Commitments.

Economic Impact Analysis

The 2022 ASC assessed economic impacts in terms of employment, labor income, and economic output using the IMPLAN economic modeling package. The Applicant's analysis relied on IMPLAN data from 2019. Impacts are assessed using a multi-county model with data specific to Benton and Franklin Counties. The Applicant provided separate economic analyses for the example phased approach to construction and operations.

Appendix 4.16-1 provides detailed information about the IMPLAN model, Project data used to calculate economic impacts, and estimated economic output data for the Project's construction and operations stages. The IMPLAN model reports economic impacts using output, jobs, and personal income. The economic metrics presented by IMPLAN are defined as follows:

- **Output:** The value of goods and services produced, which serves as a broad measure of economic activity.
- **Jobs:** Measured as the average number of employees engaged in full- or part-time work. For this analysis, model outputs are subsequently adjusted to full-time equivalents (FTEs) using coefficients provided by IMPLAN. Job estimates are presented in FTEs or job-years, with each identified job representing 12 months (2,080 hours) of employment.
- **Personal income (or labor income)**: Expressed as the sum of employee compensation and proprietary income. Project-related personal income may be broken down as follows:
  - Employee compensation (wages) includes workers' wages and salaries, as well as other benefits such as health, disability, and life insurance; retirement payments; and non-cash compensation, expressed as total cost to the employer.
  - Proprietary income (business income) represents the payments received by small-business owners or self-employed workers (Florida State University 2000).

Impact Types

Economic multipliers derived from the IMPLAN model are used to estimate total economic impacts. Total economic impacts consist of three components: direct, indirect, and induced. These three components are described as follows:

- **Direct:** The direct impact component consists of expenditures made specifically for the proposed facility, such as construction labor and materials. These direct impacts generate economic activity elsewhere in the local economy through the multiplier effect, as initial changes in demand "ripple" through the local economy and generate indirect and induced impacts. For the analysis presented in the 2022 ASC, the direct component was based on labor expenditures only and did not include direct expenditures on materials, which are included as part of the indirect impact analysis. Direct impacts could result from increases in population, increased demand for housing, and increased income and jobs added to the local economy (USDA 2003).
- **Indirect:** Indirect impacts are generated by the expenditures on goods and services by suppliers who provide goods and services to a construction project. Indirect effects are often referred to as "supply-chain" impacts because they involve interactions among businesses. For the analysis of the Proposed Action, indirect impacts also include the effects of direct expenditures (i.e., local purchases associated with the project's construction or operaiton) on materials. Indirect impacts could result from increases in indirect and induced income and jobs added to the local economy (USDA 2003).
- **Induced:** Induced impacts are generated by the spending of households associated either directly or indirectly with the proposed facility. Workers employed during construction, for example, will use their income to purchase groceries and other household goods and services. Workers at businesses that supply the facility during construction or operation will do the same. Induced effects are sometimes referred to as "consumption-driven" impacts (USDA 2003).

Environmental Justice

Revised Code of Washington (RCW) 70A.02.010 defines environmental justice (EJ) as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, rules, and policies. EJ includes addressing disproportionate environmental and health impacts in all laws, rules, and policies with environmental impacts by prioritizing vulnerable populations and overburdened communities, the equitable distribution of resources and benefits, and eliminating harm (RCW 70A.02.010).

The U.S. Environmental Protection Agency (EPA) defines the term "fair treatment" to mean that "no group of people, including a racial, ethnic or a socioeconomic group, should bear a disproportionate share of the negative environmental consequences from industrial, municipal and commercial operations or the execution of federal, state, local and tribal programs and policies." In implementing its programs, EPA has expanded the concept of fair treatment to include not only consideration of how burdens are distributed across all populations, but the distribution of benefits as well. Disproportionate effects as presented in Executive Order 12898 is described as situations of concern where there exists significantly higher and more adverse health and environmental effects on minority populations, low-income populations or indigenous peoples (EPA 2020).

Executive Order 12898 addresses people of color populations, low-income populations, and indigenous peoples as population groups of concern in considering potential EJ implications of a regulatory action (EPA 2016). According to the Council on Environmental Quality (CEQ), to be considered an EJ community, a community must

have a high percentage of people of color or a significant amount of its population living at or below the poverty level per U.S. Census data. Demographics data can be used to analyze trends to identify potentially disproportionate impacts on low-income and people of color communities (CEQ 1997).

RCW 19.405.020 defines low-income as:

> *Household incomes as defined by the department or commission, provided that the definition may not exceed the higher of eighty percent of area median household income or two hundred percent of the federal poverty level, adjusted for household size.*

Methodology for Evaluating Environmental Justice

This evaluation of socioeconomics applied the federal and state definitions of EJ to the analysis of people of color and low-income communities. Considering the location of the Project, and the fact that Benton County has the lowest percentage of low-income and people of color population, in comparison to other counties within the Project study area, Benton County was selected as a conservative reference community for the analysis of low-income and people of color communities in this study. Therefore, data on people of color and low-income populations in the study area were compared to the population characteristics of Benton County. If the percentage of people of color or low-income populations within the studied census block groups was greater than Benton County, the block group was identified as a people of color and/or a low-income community.

Communities of color were identified using census data for all people who identify as a race other than white alone (e.g., list their ethnicity as Hispanic or Latino). Low-income populations are defined in this report as the percentage of people living at or below twice the federal poverty level. For more information on the definitions of people of color and low-income, and data sources used to identify these communities, refer to Section 3.16.

For the evaluation of EJ in this section, changes in air quality, noise, increased transit times, availability of affordable housing, and losses of income or jobs represent potential impacts on people of color and low-income communities. This does not suggest that other aspects of the natural or built environment don't directly or indirectly impact people of color or low-income communities.

4.16.2 Impacts of Proposed Action

This analysis of potential impacts of the Proposed Action addresses population, economic conditions, housing, and EJ. The economic impact analysis presented in the 2022 ASC indicates that Project-induced economic activity is not expected to result in indirect population growth or a related demand for housing capacity (Horse Heaven Wind Farm, LLC 2022).

The Project would generate both direct and indirect impacts on local tax revenues. Indirect impacts on the region's general welfare from potential changes in air quality, health and safety, and transportation are evaluated in Sections 4.3, 4.13, and 4.14, respectively. The following summarizes the study area with regards to the CEQ EJ definition for low-income and people of color communities, as well as low-income communities as described in RCW 19.405.020:

- Communities with a population of people of color higher than 50 percent are located in Franklin County (54 percent Hispanic alone / 59 percent All People of Color) and Yakima County (51 percent Hispanic alone / 57 percent All People of Color) (Table 3.16-2).
- While white alone represents the majority population in the six census block groups that intersect with or are adjacent to the Project Lease Boundary, minority populations make up meaningful percentages of the

respective communities. The percentage of people of color for the six census block groups together (18 percent) is well below the identified threshold for this analysis (29 percent). However, Census Tract 116, Census Block Group 1, is an identified community of color because the percentage of people of color in this block group (45 percent) is greater than the percentage of people of color in the identified reference community, Benton County (29 percent) (see Section 3.16 for additional details).

- Census Tract 116, Block Group 1, spans a very large area, with majority of it outside the Project Lease Boundary. This census block group is among the least populated of the six census block groups, and it is the largest block group that intersects the Project Lease Boundary. Based on the review of the aerial imagery, this block group contains very little built-up development in the form of dispersed housing. In addition, the proximity values to other EJ indicators, such as superfund sites, traffic, and hazardous waste, are low in this area.
- The percentage of low-income population in all four counties within the study area is higher than the percentage of low-income population in the State of Washington as a whole (24 percent). Yakima County, with 43 percent, has the highest, and Benton County, with 26 percent, has the lowest percentage of low-income individuals in the study area (Table 3.16-5).
- The percentage of low-income population in Benton County (26 percent) is 2 percent higher than the percentage of low-income population in Washington State (24 percent). As stated in Section 4.16.1, Benton County is the reference community for the analysis of low-income within the census block groups that intersect with or are located adjacent to the Project Lease Boundary.
- The low-income population in Census Tract 115.01 Block Group 1, with 41 percent low-income, and Census Tract 118.01, Block Group 3, with 31 percent low-income, are higher than the low-income population of the reference community (Benton County with 26 percent) (Table 3.16-4).
- While the percentage of low-income population for the six census block groups together (14 percent) is well below the identified low-income threshold for this analysis (26 percent), Census Tract 115.01, Block Group 1 and Census Tract 118.01, Block Group 3, with 41 percent and 31 percent of low-income population, respectively, exceed the low-income threshold (26 percent) and are identified as low-income communities (refer to Section 3.16 for additional details).
- Census Tract 115.01, Block Group 1 is the only census block group (among the six) that is completely outside the Project Lease Boundary but is located adjacent to the Project Lease Boundary (Figure 3.16-2). This census block group is also among the least populated block groups (1,077 individuals for whom income status is determined). Review of aerial imagery indicated a low amount of built-up development in the majority of the areas within this census block group. Proximity values to other EJ indicators, such as superfund sites, traffic, and hazardous waste, are low for this census block group.
- Census Tract 118.01, Block Group 3 is the second largest census block group (after Census Tract 116, Block Group 1) that intersects with the Project Lease Boundary. Compared to other block groups, Census Tract 118.01, Block Group 3 has the lowest population of individuals for whom income status is determined (see Section 3.16 for details). Large portions of this block group are located outside of the Project Lease Boundary. Review of aerial imagery indicated there is a very low amount of built-up development and this census block group is characterized by its scattered dispersed housing. Also, as demonstrated in Appendix

3.16-A, proximity values to other EJ indicators, such as superfund sites, traffic, and hazardous waste are low for this census block group.

4.16.2.1 Impacts during Construction

According to the 2022 ASC, the largest share of the overall construction cost of wind-energy-generating facilities consists of the purchase and transportation of equipment (e.g., turbines, blades, and towers) to the Project site. Similarly, Project-related materials and equipment such as solar modules, inverters, BESS, electrical components, and mountings account for the largest share of the overall construction cost for solar facilities. The Applicant anticipates acquiring these technical project components outside the study area (Horse Heaven Wind Farm, LLC 2022).

Economic Conditions

Construction Expenditures

Construction expenditures are the money spent or allocated to the cost of real property. This includes the cost of constructing or making improvements to real property. The Applicant anticipates that the following construction expenditures would occur in the study area:

- **Balance of Plant for Wind Turbines**. Local expenditures are expected to include everything but the actual wind turbines (e.g., concrete, rebar, and other construction materials; electrical components; and cabling required to prepare the sites).
- **Balance of System for Solar Arrays**. Local expenditures are expected to include everything but the actual solar array (e.g., concrete, rebar, and other construction materials; electrical components; and cabling required to prepare the sites) (Horse Heaven Wind Farm, LLC 2022).

The Applicant's economic impact analysis states that other expenditures expected to occur in the study area include those related to engineering, legal services, substation and transmission line construction, and operations and maintenance (O&M) building construction. Of these local expenditures, the Applicant anticipates that upgrades to the Bonneville Power Administration network would need to occur to accommodate the energy that would be generated by the Project (Horse Heaven Wind Farm, LLC 2022).

The 2022 ASC concludes that installation labor-related expenditures that occur in the counties within the study area would result in economic impacts elsewhere in the local economy. For instance, workers temporarily relocating to the Project vicinity for the duration of their on-site employment would spend per diem money throughout the study area on food, lodging, and clothing (Horse Heaven Wind Farm, LLC 2022).

Fiscal Impact

The fiscal impact analysis prepared as part of the 2022 ASC estimated local tax revenues that would be expected to accrue as a result of the Project's construction. Sales and use tax revenues from construction would be one-time revenues generated during the Proposed Action's construction stage.

Sales and Use Tax

Tax imposed under RCW 82.08.020 does not apply to the sales of machinery and equipment used directly in generating electricity from renewable sources or to sales of or charges made for labor and services rendered in respect to installing such machinery and equipment. The economic impact analysis presented in the 2022 ASC assumed that procurements subject to state and local sales tax are limited to items not used directly to generate electricity. The exemption may be claimed in the form of a sales or use tax remittance of 50 percent, 75 percent,

or 100 percent of the sales or use tax paid on qualified machinery and equipment, and installment labor and services (RCW 82.08.962; RCW 82.12.962).

The economic impact analysis presented in the 2022 ASC states that the Project would attempt to meet RCW 82.08.962 criteria for a 100 percent remittance of sales tax paid on qualified machinery, equipment, and installment labor and services. These criteria include certification by the Washington State Department of Labor and Industries that the Project was developed under a community workforce agreement or project labor agreement (Horse Heaven Wind Farm, LLC 2022).

While a considerable portion of construction-related materials and labor services would be exempt from Washington State sales and use tax, the following describes the types of construction expenditures that would not be shielded from duties under RCW 82.08.962:

- Local purchases of concrete, rebar, and other raw construction materials
- Expenditures related to O&M building construction
- Local expenditures by construction workers

The following presents the sales tax estimates for the Project's example phased construction:

- Phase 1 construction would generate one-time revenues of approximately $2.9 million in state and $1.0 million in local sales tax (Horse Heaven Wind Farm, LLC 2022).
- Phase 2 (i.e., Phase 2a and 2b) construction would generate one-time revenues of $2.2 million to $3.7 million in state sales tax, and $0.7 million to $1.2 million in local sales tax. Phase 2a represents the lower of the range of both estimates (Horse Heaven Wind Farm, LLC 2022).

Employment, Labor Income, and Economic Output

Table 4.16-1A in **Appendix 4.16-1** shows the distribution of average on-site workforce per month by type of employment for each task. **Table 4.16-1B** in **Appendix 4.16-1** presents estimated construction impacts for Phases 1, 2a, and 2b. The Project's direct impacts on on-site employment as estimated by IMPLAN are summarized below (Horse Heaven Wind Farm, LLC 2022):

- **Phase 1**: Construction of the Project is estimated to create approximately 171 on-site FTE jobs filled by local workers.
- **Phase 2a**: Construction of Phase 2a is estimated to create approximately 152 on-site FTE jobs filled by local workers.
- **Phase 2b**: Construction of Phase 2b is estimated to create 136 on-site FTE construction jobs filled by local workers.

In addition to providing on-site jobs, the Project's construction stage would also support employment, labor income, and economic output in other sectors of the local economy. The IMPLAN estimates for indirect job creation are summarized as follows:

- **Phase 1**: Construction of the Project is estimated to indirectly create 168 jobs.
- **Phase 2a**: Construction of the Project is estimated to indirectly create 199 jobs.

- **Phase 2b**: Construction of the Project is estimated to indirectly create 269 jobs.

The higher number of indirect jobs for Phase 2b is mainly due to local expenditures on construction materials and transmission line-related expenditures, both of which are estimated to be higher for Phase 2b than for Phase 2a (Horse Heaven Wind Farm, LLC 2022). As new income originating from the Project is spent throughout the local economy, the increased economic activity would support induced job creation in unrelated sectors. The IMPLAN estimates for induced job creation are summarized as follows:

- **Phase 1**: Construction of the Project is estimated to support an additional 118 jobs.
- **Phase 2a**: Construction of the Project is estimated to support a further 120 jobs.
- **Phase 2b**: Construction of the Project is estimated to support an additional 135 jobs.

The IMPLAN estimated total jobs and income from the Project are summarized as follows:

- **Phase 1**: Overall, construction of Phase 1 is estimated to support a total of approximately 458 jobs in Benton and Franklin Counties and approximately $37.0 million in labor income, with total economic output of approximately $70.6 million.
- **Phase 2**: Overall, construction of Phase 2 is estimated to support a total of 472 to 539 jobs in Benton and Franklin Counties and approximately $37.6 million to $41.9 million in labor income, with total economic output of approximately $73.0 million to $85.7 million (Horse Heaven Wind Farm, LLC 2022).

As indicated in **Table 4.16-1B** in **Appendix 4.16-1**, construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. In summary, the Proposed Action would generate local jobs and tax revenue. As a result of these benefits, the Project is not anticipated to have adverse impacts on the study area's economic conditions.

Housing

As indicated in Tables 3.16-5 and 3.16-6 in Section 3.16, vacant housing exists throughout the study area, and the study area maintains substantial short term rental options that include hotels, motels, campgrounds, and recreational vehicle parks. Based on the Applicant's acknowledgment that most construction workers would be sourced locally, and on the availability of short term and long-term rentals throughout the study area, the example Action's construction stage (i.e., Phase 1, Phase 2a, and Phase 2b) would result in a negligible, temporary to short term, feasible, regional impact on housing availability. Adverse impacts would occur if a reduction in short term and long-term rentals reduces supply enough that it causes an increase in rental prices.

Analysis of Project impacts on housing during construction, and impact ratings for this topic, are informed by consideration of all construction activities combined.

Environmental Justice

Table 4.16-3 presents an analysis and ranking of construction impacts on economic conditions and housing availability for the people of color and low-income communities identified in Section 3.16.

Table 4.16-3: Impact of Project Construction on People of Color and Low-Income Communities

Geographic Area	Demographics	Impact on Economic Conditions	Impact on Housing Availability
Franklin County	People of color population of 59% (54% Hispanic alone) (higher than reference threshold: 29%). Low-income population of 34% (higher than reference threshold for low-income: 26%).	Within Franklin County, it is anticipated that the Project would increase economic input, labor income, and tax revenue, which would result in no adverse impact on economic conditions.	With a vacancy rate of 2.7%, 217 units available for rent, and the majority of workers being sourced locally, the construction stage would have a low, short term, feasible, regional impact on housing availability in Franklin County.
Yakima County	People of color population of 57% (51% Hispanic alone) (higher than reference threshold: 29%). Low-income population of 43% (higher than reference threshold for low-income: 26%).	Data not available[(a)]	With a vacancy rate of 2.8%, 793 units available for rent, and the majority of workers being sourced locally, the construction stage would have a low, short-term, feasible, regional impact on housing availability in Yakima County.
Walla Walla County	Low-income population of 31% (higher than reference threshold for low-income: 26%).	Data not available[(a)]	With a vacancy rate of 6.1%, 466 units available for rent, and the majority of workers being sourced locally, the construction stage would have a low, short-term, feasible, regional impact on housing availability in Walla Walla County.
Census Tract 116, Block Group 1, (Lease Boundary)	People of color population of 45% (44% Hispanic alone) (higher than reference threshold: 29%).	Within Benton County, it is anticipated that the Project would increase economic input, labor income, and tax revenue, which would result in no adverse impact on economic conditions.	Based on Benton County's vacancy rate of 5.1%, 1,660 units available for rent, and the majority of the workers being sourced locally, the construction stage would have a low, short-term, feasible, regional impact on housing availability in Census Tract 116, Block Group 1.

Table 4.16-3: Impact of Project Construction on People of Color and Low-Income Communities

Geographic Area	Demographics	Impact on Economic Conditions	Impact on Housing Availability
Census Tract 115.01, Block Group 1, (Lease Boundary)	Low-income population of 41% (higher than reference threshold: 26%).	Within Benton County, it is anticipated that the Project would increase economic input, labor income, and tax revenue, which would result in no adverse impact on economic conditions.	Based on Benton County's vacancy rate of 5.1%, 1,660 units available for rent, and the majority of the workers being sourced locally, the construction stage would have a low, short-term, feasible, regional impact on housing availability in Census Tract 115.01, Block Group 1.
Census Tract 118.01, Block Group 3 (Lease Boundary)	Low-income population of 31% (higher than reference threshold: 26%).	Within Benton County, it is anticipated that the Project would increase economic input, labor income, and tax revenue, which would result in no adverse impact on economic conditions.	Based on Benton County's vacancy rate of 5.1%, 1,660 units available for rent, and the majority of the workers being sourced locally, the construction stage would have a low, short-term, feasible, regional impact on housing availability in Census Tract 118.01, Block Group 3.

Source: Section 3.16 of this EIS
Notes:
[(a)] The Applicant's IMPLAN analysis focused on Benton and Franklin Counties; Yakima and Walla Walla Counties were not included in the economic impact analysis.

This analysis of construction impacts is informed by consideration of all construction activities combined and incorporates the impact ranking from Section 4.3, Air Quality; 4.10, Visual Aspects, Light and Glare; Section 4.11, Noise and Vibration; Section 4.12, Recreation; and Section 4.14, Transportation. The analysis of air quality, noise, increased transit times, and availability of affordable housing indicates that the Project would adversely impact all people that intersect the Lease Boundary and study area including people of color and low-income communities. The following are examples of adverse impacts identified in the evaluation of air quality, visual aesthetics and recreation, noise and vibration, and transportation that could also impact communities located near the Project by introducing changes to the environmental settings such as traffic, noise levels, air quality, visual quality, and quality of use at recreational sites:

- Increased truck traffic on rural roadways may noticeably increase fugitive dust in identified people of color and low-income communities that intersect the Lease Boundary (Section 4.3, Air Quality).
- Construction and the erection of turbines could obstruct views from residences or views of or from recreation resources (4.10 Visual Aspects, Light and Glare; Section 4.12, Recreation).
- Construction noise impacts within the Project Lease Boundary could be loud enough at times to temporarily interfere with speech communication outdoors and indoors with windows open (Section 4.11).

- During Project construction, many construction vehicles, including trucks with oversized and overweight loads, would need to share the existing roadway network with the general public (Section 4.15).

Block Group Level Analysis

The Applicant intends to use a portable concrete batch plant (CBP) during each phase of construction for a period of up to four months. A portable CBP would be installed near the east laydown area during Phase 1 construction and a portable CBP would be installed near the west laydown area during Phase 2 construction. The CBPs are anticipated to operate for a period of about 4 months at each location. Additionally, the Applicant intends to locate standby generators at or near their east and west laydown yards (Tetra Tech 2023). The following describes an analysis of how potential use of CBPs and standby generators would impact the census tract block groups that intersect the Lease Boundary

- As shown in Figures 3.16-1 and 3.16-2, the west laydown area occurs within Census Tract 116, Block Group 1 and the east laydown area occurs within Census Tract 118.01 Block Group 3. As presented in Table 3.16-3, Census Tract 116, Block Group 1 has a higher percentage of people of color than the reference threshold percentage, while the percentage of people of color within Census Tract 118.01 Block Group 3 is below the threshold percentage. As presented in Table 3.16-6, Census Tract 118.01 Group 3 has a higher percentage of low-income population than the reference threshold community, Census Tract 116, Block Group 1 does not.
- As discussed in Section 4.3, air quality impacts are small when compared to the regional emission inventory and the modeling performed shows no indication that any ambient air quality standard would be violated because of construction. Based on the supplemental emissions calculations, air quality dispersion modeling, proposed localities of the CBPs and standby generators, the Project is unlikely to disproportionately impact the air quality of census tract block groups with a higher percentage of people of color or low-income populations than the reference thresholds.

The Applicant intends to use Interstate-82 to mobilize equipment and materials from collection points in Oregon and beyond to Laydown Areas 1 and 2. Additionally, the Applicant has committed to promoting car pools for employees that relocate to the study area for the Project's construction phase. It is anticipated that local employees would use their personal vehicles and transit to and from the job site. These Applicant Commitments presented in Section 4.14 would minimize the use of rural collector roads by heavy transports limiting impacts on people of color and low-income populations within the Lease Boundary.

The magnitude of impacts from construction of the Project is anticipated to be negligible for light, low for glare, medium for visual aspects (Sections 4.10), negligible to low for air quality (Section 4.3), low to medium for noise (Section 4.11), medium for recreational sites (Section 4.12) and low for transportation (Section 4.14). Impacts from the combined construction of the Project on people of color and low-income communities would be negligible to medium in magnitude, short term due to the potential for impacts to occur during the entire construction stage, feasible, and confined to regional in spatial extent.

The Proposed Action is not anticipated to disproportionately impact people of color or low-income communities because:

- The Lease Boundary and study area span multiple communities, the majority of which are not communities of low-income or people of color;

- The communities within the Lease Boundary and near the Lease Boundary have a combined low-income population and a combined people of color population that are very similar to those of the reference community (Benton County).
- The communities (e.g., census block groups) that were identified as communities of low income or people of color, have low populations and dispersed urban development within large census areas. Additionally, these areas tend to be farther away from the Project than comparative communities.
- The communities that were identified as communities of low-income or people of color and the communities that fell below the low-income and people of color thresholds will experience similar levels of risk of impacts from other environmental stressors (i.e., proximity to traffic, superfund sites, hazardous waste facilities).

4.16.2.2 Impacts during Operation

Once the construction stage is complete, the Project's operations stage would continue to contribute to the local economy. The Project would provide direct operation-related employment and expenditures. A team of 16 to 20 personnel would be employed to operate and maintain Project components. Operations staff would include a facility manager, a Project site manager, a Project site lead, and a certified crew of technicians (Horse Heaven Wind Farm, LLC 2022). Activities and expenditures during the operations stage are summarized below:

- The Project would require preventive and corrective maintenance of the turbines, solar arrays, BESS, electrical collection system, and substations.
- Routine inspections would be conducted to ensure continuing plant and transmission system safety and reliability.
- Vehicle-related expenditures would include fuel costs, site maintenance, replacement parts and equipment, and miscellaneous supplies (Horse Heaven Wind Farm, LLC 2022).

Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project.

Population

Employment and Labor Income

Table 4.16-1C in **Appendix 4.16-1** presents estimated operations impacts for example construction Phases 1, 2a, and 2b. Annual average impacts are based on estimated operations and maintenance expenditures for a 35-year period of operation. The following summarizes the direct impacts of the Project's operations on on-site employment as estimated by IMPLAN:

- **Phase 1**: Eleven FTEs would be employed on site to operate and maintain the Phase 1 portion of the Project.
- **Phase 2 (i.e., Phase 2a and 2b)**: Nine FTEs would be employed on site to operate and maintain the facility.

On-site workers would be hired from the local population in Benton and Franklin Counties or within the larger study area. Operation and maintenance of the Project would also support employment, labor income, and economic output in other sectors of the local economy (Horse Heaven Wind Farm, LLC 2022). In addition to providing on-site jobs, operation of the Project would also support employment, labor income, and economic

output in other sectors of the local economy. The IMPLAN estimates for indirect job creation are summarized as follows:

- **Phase 1**: Approximately 12 jobs would be indirectly created by operation and maintenance of the Project.
- **Phase 2:** Approximately 9 to 10 jobs would be indirectly created by operation and maintenance of the Project.

The following details the IMPLAN estimates for induced job creation by Project phase:

- **Phase 1**: Operation and maintenance of the Project is estimated to support an additional nine jobs.
- **Phase 2**: Operation and maintenance of the Project is estimated to support an additional seven jobs. (Horse Heaven Wind Farm, LLC 2022).

Economic Conditions

Fiscal Impact

The fiscal impact analysis prepared as part of the 2022 ASC estimated local tax revenues that would be expected to accrue as a result of the Project's construction.

Property Tax

The parcels that make up the Lease Boundary fall within several different Tax Areas. The 2022 ASC states that in 2020, the most common rate (i.e., millage (mill) or levy) identified for the parcels that make up the Lease Boundary was 11.49 mills. The average tax rate for the parcels within the Lease Boundary is very similar to the Tax Area and county averages. The property tax estimates presented in the 2022 ASC used the 2020 Benton County average rate of 11.40 mills to estimate potential property tax revenues based on the estimated installed cost of the Project by phase. Estimated Project-related property tax revenues are assumed to be "add-ons" to existing levy amounts and would represent increases above current levels.

Property tax revenues are estimated for each phase for the first year of operation. Total property tax revenues are also estimated for the assumed 35-year operating life of the Project. The assessed values of the Project phases over this period are estimated based on the installed cost, average mill rate, and Washington Department of Revenue 2021 Personal and Industrial Property Valuation Guidelines (Horse Heaven Wind Farm, LLC 2022). The estimated property taxes that the Applicant would owe during operations are summarized as follows:

- **Phase 1**: Phase 1 would generate an estimated $10.4 million in property taxes in its first year of operation. This estimated total is equivalent to approximately 4.1 percent of the total property tax revenues generated in Benton County in 2020 (Horse Heaven Wind Farm, LLC 2022).
  - Over the 35-year operating life of the Project, Phase 1 would generate an estimated $140.6 million in total property tax revenues.
  - Viewed in dollar terms, Phase 1 during its first year of operation would generate approximately $6.1 million in school-related tax revenues, with $3.4 million of this total paid directly to local school districts.
  - The next largest share of property tax revenues would go to fire districts (14 percent), followed by roads (12 percent).

- **Phase 2**: Phase 2 would generate an estimated $9.0 million in property taxes in its first year of operation. This estimated total, which is the same for both Phases 2a and 2b, is equivalent to approximately 3.5 percent of the total property tax revenues generated in Benton County in 2020 (Horse Heaven Wind Farm, LLC 2022). The property tax revenues paid by the Applicant under the Phase 2 scenario may be summarized as follows:
  - Over the 35-year operating life of the Project, Phase 2a would generate an estimated $122.3 million in total property tax revenues.
  - The estimated total generated under Phase 2b over the same 35-year period would be $121.7 million.
  - Viewed in dollars terms, Phase 2 combined would generate approximately $5.3 million in school-related tax revenues, $2.9 million of which would be paid directly to local school districts (Horse Heaven Wind Farm, LLC 2022).

Under RCW 84.34, land classified as farm and agricultural land can receive tax relief from property taxes. Under Phase 2a, construction of the solar component of the Project would result in additional property tax revenue for Benton County as the land would be taken out of production. This potential source of revenue would only occur under Phase 2a because Phase 2b does not include solar facilities (Horse Heaven Wind Farm, LLC 2022).

Economic Output

Estimated indirect and induced impact estimates include the impacts of Project-related lease payments to participating landowners, including the Washington Department of Natural Resources.

The IMPLAN estimated total jobs and income are summarized below:

- **Phase 1**: Overall, operation of Phase 1 is estimated to support approximately 32 total (direct, indirect, and induced) jobs in Benton and Franklin Counties and approximately $2.4 million in labor income, with total economic output of approximately $5.5 million. These estimated annual impacts are expected to occur each year that the Project operates.
- **Phase 2**: Overall, operation of Phase 2 (if both Phase 2a and 2b are constructed) is estimated to support approximately 24 to 26 total (direct, indirect, and induced) jobs in Benton and Franklin Counties and approximately $1.8 million to $2.1 million in labor income, with total economic output of approximately $4.1 million to $5.2 million (Horse Heaven Wind Farm, LLC 2022).

Housing

As indicated in **Table 4.16-1C** in **Appendix 4.16-1**, the Proposed Action would generate or support up to 58 FTEs. Based on the availability of housing within the study area (see Table 3.16-7 in Section 3), the Project's operations stage is anticipated to result in a negligible, long-term, feasible, regional impact on housing availability. An adverse impact on housing availability would occur only if workers have to relocate to the study area.

Analysis of Project impacts on housing during operation, and impact ratings for this topic, are informed by all phases of Project operations combined.

Environmental Justice

The analysis of impacts that the Project's operations stage (i.e., Phase 1, 2a, and 2b combined) would have on people of color and low-income communities incorporates the impact rankings from Section 4.3, Air Quality; Section 4.11, Noise and Vibration; and Section 4.14, Transportation.

Based on the IMPLAN model (**Appendix 4.16-1**), it is anticipated that by increasing property tax revenue and payroll income locally, the Project would not result in adverse economic impacts on people of color and low-income communities. For example, Project-generated property tax revenues would go directly to the school districts and fire stations that service communities that intersect with the Lease Boundary.

As indicated in Sections 4.3, Air Quality; 4.10, Visual Aspects, Light and Glare; 4.11, Noise and Vibration; 4.12, Recreation; and 4.14, Transportation, the Project would adversely impact the communities that intersect the Lease Boundary and study area including people of color and low-income communities. Examples of adverse impacts on these communities that are anticipated to result from the Project's operations stage include the following:

- Driving on gravel roads to service Project components would generate fugitive dust (Section 4.3, Air Quality).
- Turbines could obstruct views from residences or views of or from recreation resources (Section 4.10, Visual Aspects, Light and Glare; Section 4.12, Recreation).
- Noise levels at the closest residences would be at or near the WAC nighttime noise limit of 50 A-weighted decibels (Section 4.11, Noise and Vibration).
- The Project would add 16 to 20 vehicle trips per day to the O&M facilities, with an additional 35 trips per day during periods of panel washing (Section 4.14, Transportation).

While impacts from operation of the Project are anticipated to be negligible on air quality (Section 4.3), low on transportation (Section 4.14), and medium on noise and recreational sites (Sections 4.11 and 4.12), impacts are anticipated to be medium to high on visual aspects during operation of the Project (Section 4.10).

Impacts from operation of the Project on all people that intersect the Lease Boundary and study area, including people of color and low-income individuals in these communities, would be negligible to medium in magnitude, long term due to the potential for impacts to occur during the entire operations stage, feasible, and confined in spatial extent.

Operation of the Project is not anticipated to disproportionately impact people of color or low-income communities because:

- The Project Lease Boundary and study area span multiple communities, the majority of which were not identified as low-income populations or communities of color.
- The census block groups that were identified as low-income populations or communities of color, have low populations and dispersed urban development within large-size census areas, mainly in areas farther away from the Project.
- The communities within the Lease Boundary and near the Lease Boundary have a combined low-income population and a combined people of color population that are very similar to those of the reference community (Benton County).
- The communities that were identified as communities of low income or people of color are not at greater risk of impacts from other environmental stressors (i.e., proximity to traffic, superfund sites, hazardous waste, and facilities).

- The majority of the identified viewpoints (selected residences or recreation sites) that are anticipated to experience high impacts relating to visual aspects, during the operation of the Project, are located within areas where the identified communities of low income or people of color are proportionally below the reference community.

4.16.2.3 Impacts during Decommissioning

Impacts on housing availability for residents within the study area during the decommissioning stage would be similar to those described for the Project's construction stage. The analysis of Project-related impacts on housing during decommissioning, and impact ratings for this topic, are informed by consideration of combined decommissioning activities. Based on the Applicant's acknowledgment that the majority of workers would be sourced locally, and on the availability of short-term and long-term rentals throughout the study area, the decommissioning stage is anticipated to result in a negligible, temporary to short term, feasible, regional impact on housing availability. Adverse impacts would occur if a reduction in short-term and long-term rentals were to reduce supply to the point that it caused an increase in rental prices.

Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income. However, it is anticipated that Project decommissioning would impact tax revenues and, as a result, general wellbeing. Therefore, in addition to impacts on housing and people of color and low-income populations (the two topics analyzed for construction and operation stages of the Project), analysis of decommissioning-related impacts includes analysis impacts on wellbeing.

Decommissioning of the Project would result in property tax revenues for Benton County and the Tax Area returning to levels typical of the area prior to the Project as the Project's added value would be removed from the parcels that make up the Lease Boundary's valuation. For example, a reduction to smaller pre-Project collections would impact operational budgets for schools, school districts, and fire stations within Benton County and the Tax Area. The discontinuation of increased tax revenues as a result of the decommissioning of the Project is not considered as an adverse impact for the purposes of this EIS as there is not anticipated to be net reduction of tax revenues when comparing pre-Project and post-Project conditions.

Environmental Justice

Similar to the impacts described for construction, the analysis of air quality, visual aspects, noise, increased transit times, and availability of affordable housing indicates that Project decommissioning would adversely impact people of color and low-income communities that intersect the Lease Boundary.

Impacts from the combined decommissioning of the Project on all people that intersect the Lease Boundary and study area, including people of color and low-income communities would be negligible to medium in magnitude, temporary to short term due to the potential for impacts to occur during the entire decommissioning stage, feasible and local in spatial extent. For instance, decommissioning would result increases in traffic and noise within and near the Lease Boundary.

Decommissioning would not be anticipated to disproportionately impact potential people of color or low-income communities, because:

- The Lease Boundary and study area span multiple communities, the majority of which are not communities of low-income or people of color.

- The communities within the Lease Boundary and near the Lease Boundary have a combined low-income population and a combined people of color population that are very similar to those of the reference community (Benton County).
- The communities (e.g., census block groups) that were identified as communities of low income or people of color have low populations and dispersed urban development within large census areas. Additionally, these areas tend to be farther away from the Project than comparative communities.
- The communities that were identified as communities of low-income or people of color are not in greater risk of impacts from other environmental stressors (i.e., proximity to traffic, superfund sites, hazardous waste facilities).

4.16.2.4 Recommended Mitigation Measures

In addition to mitigation measures detailed in Sections 4.3, Air Quality; 4.11, Noise; and 4.14, Transportation, the Washington Energy Facility Site Evaluation Council has identified the following additional and modified mitigation measure for the Project to avoid and/or minimize potential impacts on socioeconomics:

Socio-ec-1:[69] Prior to decommissioning, the Applicant would provide an up-to-date analysis on the availability of temporary housing for workers. If sufficient temporary housing for workers is not available, the Applicant would present EFSEC with options for housing workers from outside the community.

Rationale: This mitigation measure would minimize adverse impacts on the availability of housing for residents of the surrounding communities.

4.16.2.5 Post-Adjudication Applicant Commitments

The Draft EIS for the Project was released in December 2022 and included the Applicant's proposed commitments to minimize or avoid impacts of the Project on each analyzed element of the environment. The effectiveness of the Applicant's proposed commitments in reducing impacts was analyzed for each resource in the subsections of Chapter 4. Within the Draft EIS, EFSEC recommended additional mitigation measures beyond the Applicant's proposed commitments to minimize impacts. Both the Applicant commitments and the EFSEC-recommended mitigation measures were considered when characterizing the residual impacts (those remaining after application of mitigation) to determine whether a significant, unavoidable, adverse impact would result.

Comments on the Draft EIS were received from the public, Applicant, Tribes and agencies related to the recommended mitigation during the public commenting period. Prior to the issuance of this Final EIS, mitigation measures were further developed and refined by technical working groups convened to review and respond to public comments and concerns.

As requested by EFSEC in Data Request 9, the Applicant provided a memorandum summarizing the changes that the Applicant was making to the Project in response to comments received on the Draft EIS, input from regulatory agencies, changes to applicable regulations, testimony from the adjudicative hearings, and information received from the Bonneville Power Administration (BPA). Additional Applicant commitments were identified and finalized in the Applicant's Final ASC, as per WAC 463-60-116 (Horse Heaven Wind Farm, LLC 2023). This regulation requires applicants to submit "application amendments which include all commitments and stipulations

[69] Socio-ec-: Identifier of numbered mitigation item for Socioeconomics

made by the applicant during the adjudicative hearings." A more detailed discussion of the proposed changes is provided in Chapter 2.

A summary of the additional Applicant commitments and other changes provided in the Final ASC is provided below:

- Reduce East Solar Array size
- Shift turbine infrastructure (Turbine Option 1) away from Webber and Sheep Canyons
- Remove four wind turbines (Turbine Option 1) near Benton City
- Remove Turbine 116 (Turbine Option 1)
- Remove Turbines 119, 121,122, 123, 124, 125, 162, and 243 (Turbine Option 1)
- Remove Turbines 5, 6, and 7 (Turbine Option 2)
- Remove duplicate transmission line and substation infrastructure and consider undergrounding of transmission lines where applicable
- Add/modify construction laydown areas, including the addition of one laydown yard outside of the Project Lease Boundary[70]
- Add radar towers associated with aircraft detection lighting system (ADLS), including one tower outside of the Project Lease Boundary
- Modify transmission line route to BPA Webber Canyon Substation, including the addition of 1,130 feet of transmission line extending outside the Project Lease Boundary
- Update fire protection systems information
- Increase the size of the West BESS in concert with the reduction of the East and Southwest BESS
- Potential Use of DNR Gould Well, outside of the Project Lease Boundary, for Water Supply

Considering the post-adjudication Applicant commitments and other changes provided in the Final ASC, the overall impact remains substantially similar due to the turbines and other Project infrastructure that remain. The additional Applicant commitments identified above do not change the impact ratings previously provided for socioeconomics in the Draft EIS, and the impact ratings remain the same.

4.16.2.6 Significant Unavoidable Adverse Impacts

Determining the significance of an impact involves context and intensity, which, in turn, depend on the magnitude and duration of an impact. "Significant" in the Washington State Environmental Policy Act means a reasonable likelihood of more than a moderate adverse impact on environmental quality. An impact may also be significant if its chance of occurrence is not great, but the resulting environmental impact would be severe if it occurred (WAC 197-11-794).

[70] The addition of new disturbance and/or infrastructure outside of the Project Lease Boundary will require supplemental analysis.

This EIS weighs the potential impacts on socioeconomics that may result from the Proposed Action with mitigation and makes a resulting determination of significance for each impact in **Tables 4.16-4a, 4.16-4b, and 4.16-4c**. As shown in the summary impact tables for socioeconomics, EFSEC has determined that no significant unavoidable adverse impacts would occur to the study area's social and economic conditions and people of color and low income populations.

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Table 4.16-4a: Summary of Potential Impacts on Socioeconomics during Construction of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Economic Environment (Housing Availability)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Phase 1 is anticipated to directly support an average monthly workforce of 300, and Phases 2a and 2b are anticipated to support an average monthly force of 267 and 271, respectively. The majority of construction workers would be sourced locally; however, the Project's construction would require the temporary and short-term relocation of non-local construction workers into the region. As reported in the 2019 American Community Survey 5-Year Estimate, rental vacancy rate in Benton County was 5.1%, with 1,660 units available for rent.	Negligible	Temporary to Short Term	Feasible	Regional	No mitigation identified	None identified
Environmental Justice (People of Color and Low-Income Populations)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Short Term	Feasible	Confined to Regional	No mitigation identified	None identified

Notes:
Source: American Community Survey (2019) 5-Year Estimate Data (U.S. Census Bureau 2020)
Source: Horse Heaven Windfarm, LLC 2022
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

Table 4.16-4b: Summary of Potential Impacts on Socioeconomics during Operation of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Economic Environment (Housing Availability)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The Proposed Action would generate or support up to 58 FTEs. A team of 16 to 20 personnel would be employed to operate and maintain Project components. As reported in the 2019 American Community Survey 5-Year Estimate, rental vacancy rate in Benton County was 5.1%, with 1,660 units available for rent.	Negligible	Long Term	Feasible	Regional	No mitigation identified	None identified
Environmental Justice (People of Color and Low-Income Populations)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Long Term	Feasible	Confined	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; FTE = full-time equivalent

Table 4.16-4c: Summary of Potential Impacts on Socioeconomics during Decommissioning of the Proposed Action

Topic	Component[a]	Description of Impact[b]	Magnitude of Impact: ▪ Negligible ▪ Low ▪ Medium ▪ High	Duration of Impact: ▪ Temporary ▪ Short Term ▪ Long Term ▪ Constant	Likelihood of Impact: ▪ Unlikely ▪ Feasible ▪ Probable ▪ Unavoidable	Spatial Extent or Setting of Impact: ▪ Limited ▪ Confined ▪ Local ▪ Regional	Mitigation[c]	Significant Unavoidable Adverse Impacts[d]
Economic Environment (Housing Availability)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	The majority of construction workers would be sourced locally; however, the Project's construction would require temporary and short-term relocation of construction workers into the region.	Negligible	Temporary to Short Term	Feasible	Regional	**Socio-ec-1:** Updated housing analysis to confirm temporary or short-term availability	None identified
General Welfare and Social Conditions (Wellbeing)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Decommissioning of the Project would restore property tax revenues for Benton County and the Tax Area to pre-Project conditions as the Project's added value would be removed from the parcels that make up the Lease Boundary's valuation. For example, smaller collections would impact operational budgets for schools, school districts, and fire stations within Benton County and the Tax Area.	Medium	Short Term	Feasible	Regional	No mitigation identified	None identified
Environmental Justice (People of color and Low-Income Populations)	Turbine Option 1 Turbine Option 2 Solar Arrays BESS Substations **Comprehensive Project**	Disproportionate impacts on people of color and low-income communities.	Negligible to Medium	Temporary to Short Term	Feasible	Regional	No mitigation identified	None identified

Notes:
[a] The impacts related to each component, including "comprehensive Project," were rated separately; components were combined in the same cell if they received the same impact ratings for the identified topic.
[b] Design features, best management practices, and other actions proposed by the Applicant to avoid or minimize environmental impacts were assumed to be part of the Proposed Action and were taken into account when identifying the impacts.
[c] Mitigation measures listed here are additional actions that EFSEC could impose to further reduce the impacts. See Section 4.1 Introduction for details.
[d] Significant unavoidable impacts are those that would remain even after all identified additional mitigation measures have been required by EFSEC.
BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council

4.16.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to socioeconomics from the construction, operation, and decommissioning of the Proposed Action would not occur. For the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary.

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5.0 CHAPTER 5 – CUMULATIVE IMPACTS

When impacts are assessed for an individual proposed action, they may be determined less than significant, but when considered collectively (cumulatively) with the impacts of other actions, especially over a period of time, they can be significant (40 Code of Federal Regulations 1508.7). The Washington State Environmental Policy Act (SEPA) requires that agencies address cumulative impacts. Cumulative impacts are the combined result of incremental direct and indirect impacts on resources from a project or plan, past and present actions, and other reasonably foreseeable developments (RFDs). RFDs generally include actions that are currently underway, formally proposed or planned, or highly likely to occur based on available information (Ecology 2018).

Construction activities and facility operations, in particular, have the potential to contribute to cumulative impacts on susceptible resources. For example, a cumulative impact would occur if increased runoff and contaminants from construction were added to the volumes and levels of contamination from similar development projects surrounding the same wetland. This analysis of cumulative impacts addresses environmental resources, such as housing, discussed in the Socioeconomics section in 3.16 and 4.16, but does not include an evaluation of other non-SEPA topics discussed in the Socioeconomics section.

5.1 Project Characteristics

Horse Heaven Wind Farm, LLC (Applicant) has proposed the Horse Heaven Wind Farm (Project, or Proposed Action), a renewable energy generation facility located in the Horse Heaven Hills area of Benton County, Washington. The Project would have a nameplate generating capacity of up to 1,150 megawatts (MW) utilizing both wind turbines and solar photovoltaic panels to convert energy from the wind and sun into electric power. The power would then be either directly transferred to the electric power grid or stored on up to two battery energy storage systems (BESS).[1] The number of turbines and the extent of solar arrays used for the Project would depend on the final turbine models and solar modules selected and the final array layout chosen but would not total more than 244 turbines or two solar arrays.

The Applicant has executed a lease agreement with landowners to establish a Lease Boundary. Within the Lease Boundary, the Applicant intends to construct turbines, solar arrays, and associated facilities. Chapter 2, Figure 2-1, shows the Lease Boundary location, which encompasses approximately 72,428 acres. The Project's Wind Energy Micrositing Corridor encompasses 11,850 acres and consists of the areas where the turbines and supporting facilities would be sited during the Proposed Action's final design. Within the Solar Siting Areas, there are three areas under consideration for the proposed solar arrays. Figure 2-2 illustrates the Solar Siting Areas and the three areas under consideration. The Solar Siting Areas encompass 10,755 acres. The Micrositing Corridor and the Solar Siting Areas are larger than the Project's final disturbance footprint. This would allow minor rerouting to optimize the design and minimize impacts to sensitive resources discovered during the final design and pre-construction process.

5.2 Analysis of Cumulative Impacts

Cumulative impacts result from spatial and temporal crowding of environmental disturbances. One way to determine the appropriate geographical boundaries for determining cumulative impacts is to consider the distance an impact can travel. For instance, a cumulative impact analysis of air emissions would need to consider impacts on air quality regionally as opposed to locally due to their mobility. For water, an appropriate boundary may be a

[1] The Applicant provided three locations for consideration of constructing the two BESS. An analysis for all the components and distinct parts as presented in Table 2.1-1 of the ASC has been completed where enough information was provided to do so.

river basin or a watershed. Similarly, when evaluating for socioeconomics, visual, or cultural and historic resources, it might be necessary to consider impacts on a community or regional basis (CEQ 1997).

Information about direct and indirect impacts of past and present actions is useful in identifying and predicting the level of impact a proposed action might have on the natural or built environment. However, the impacts of past actions may have no cumulative relationship to the impacts of a proposed action. To fully evaluate cumulative impacts, it is necessary to assess the type and extent of a proposed action's impacts and how the project and its alternatives would add to, modify, or mitigate impacts from past actions. In accordance with Council on Environmental Quality (CEQ) guidance, this analysis of cumulative impacts focuses on the current aggregate impacts of past actions without delving into the historical details of individual past projects (CEQ 2005).

Although no adverse impacts were identified for the No Action Alternative in Chapter 4, this evaluation of cumulative impacts includes an analysis of what would likely occur if the proposed project is not constructed and operated. The identification of cumulative impacts for the No Action Alternative establishes the effect that Past and Present Actions and RFDs have had or would have on the environmental setting without the incremental addition of the Proposed Action.

5.2.1 Methods

The analysis of cumulative impacts for the Proposed Action used the following steps to evaluate past and present actions and RFDs:

1) Initial scoping, or identification of projects, to consider for an analysis of cumulative impacts

2) An analysis of project characteristics determined if the projects should be carried forward to an evaluation of cumulative impacts

3) An analysis of cumulative impacts that includes the Proposed Action, the past and present actions and RFDs identified during the initial scoping (Step 1) and preliminary cumulative impacts analysis (Step 2)

5.2.1.1 Step 1: Initial Scoping

Geographic boundaries and time periods used in cumulative impact analyses should be based on the following:

- Resources that are susceptible to cumulative impacts (also known as resources of concern)
- All actions that may contribute to cumulative impacts (EPA 1999)

The CEQ guidance on cumulative impacts analysis states that scoping for applicable past and present actions and RFDs should focus on projects that impact resources similar to those impacted by the proposed action (CEQ 2005). The CEQ states that agencies should exercise discretion in determining whether, and to what extent, information about the specific nature, design, or present effects of a past action is useful for the agency's analysis of the impacts of a proposed action (CEQ 2005).

Identification of Spatial Boundaries

When considering the impacts of past and present actions and RFDs in combination with the impacts of a proposed action, the analysis of cumulative impacts may require an expansion of the spatial limits beyond the boundaries used for the analysis of direct and indirect impacts. The spatial boundaries for this cumulative impact analysis are feasible and consistent with the resources of the natural and human environment. Within the

maximum geographical range used for this analysis of cumulative impacts, each resource would likely have its own spatial boundaries.

Identification of Temporal Boundaries

Determining the temporal boundaries for an analysis of cumulative impacts requires estimating the length of time the impacts of a proposed action would occur. Within the maximum temporal boundary, each resource may have its own temporal boundary that would be less than the upper range stated for the proposed action. The length of time extends for as long as the impacts of a project might contribute to impacts on resources that are susceptible to cumulative impacts (EPA 1999). The duration of direct and indirect impacts of the Proposed Action would begin at the start of the construction phase and extend through operations and potentially beyond decommissioning and restoration. For this Project, the temporal boundaries would exceed the 30- to 35-year life expectancy of the Proposed Action.

Identification of Applicable Past and Present Actions and Reasonably Foreseeable Developments

The following discussion presents the criteria used in selecting past and present actions and RFDs for evaluation of cumulative impacts.

This assessment of cumulative impacts started with a scoping analysis that identified potential projects for evaluation. The scoping analysis included a review of energy projects (e.g., renewable and conventional) and non-energy projects, alike. Non-energy projects include transportation improvements, industrial facilities, redevelopment programs, and transmission line installations.

The scoping analysis and selection of past and present actions and RFDs extended beyond the Lease Boundary to include human communities and neighboring jurisdictions, various rural and urban landscapes, watersheds, and airsheds. The setting for the scoping analysis and selection of projects for cumulative impacts evaluation was established in accordance with U.S. Department of Energy and Washington Department of Transportation guidance on evaluating cumulative impacts (USDOE 2021; WSDOT 2022). The cumulative impacts scoping analysis used the following criteria to identify applicable past and present actions and RFDs:

- State and local agency implementation plans and databases of proposed actions (e.g., Statewide Transportation Improvement Programs, Benton County SEPA registry, etc.) were reviewed for applicable RFDs. Upon identification of potential projects within the online resources, the scoping analysis applied the following criteria to determine if an RFD would be carried forward into the preliminary cumulative impacts analysis:
  - The RFD’s funding source was clearly identified.
  - The RFD was located within Benton County, Washington’s, geographical boundaries.
- A desktop review of temporally and spatially relevant past and present actions and RFDs located within southeastern Benton County, Washington, that would have the potential to impact resources similar to those impacted by the Proposed Action. If an applicable past or present action or RFD was identified through the desktop review process, it was considered for inclusion in the preliminary cumulative impacts scoping analysis if it met the following criteria:
  - Its construction and operation were, are, or would be similar to the Proposed Action.
  - It is or would be located in a neighboring jurisdiction.

RFDs identified during the desktop review were considered for analysis if they were undergoing a federal, state, or local agency permitting process, and the agency has publicly noticed the pending action.

- To identify past and present actions and RFDs similar to the Proposed Action beyond the jurisdictional boundaries of southwest Benton County, the scoping analysis included a review of the following:
  - Federal, state, and local agency databases
  - Public and private utility providers
  - An online search for perspective energy development projects

  An RFD located beyond the local jurisdictional boundaries was considered for preliminary cumulative impacts analysis if it had received a federal, state, or local permit but construction had not started. Websites of relevant agencies with permitting authority over energy facility projects were reviewed to determine if any permits had been recently issued but construction had not started.

A full list of sources used to identify projects for the cumulative impacts analysis is included in Chapter 6 References.

5.2.1.2 Step 2: Preliminary Cumulative Impacts Analysis

Table 5-1 provides a summary of existing projects and RFDs geographically and temporally relevant to the Proposed Action, their characteristics, and potential resources susceptible for being cumulatively impacted. **Table 5-1** also presents a list of primary resources that would likely be impacted by the past and present actions and RFDs and the Proposed Action. Preparation of the Final Environmental Impact Statement (EIS) involved a review and updating of projects included in **Table 5-1**. **Figure 5-1** presents the location of the identified existing projects and RFDs. The following discussion provides the rationale for including and excluding existing projects and RFDs identified during Step 1, the preliminary cumulative impacts scoping analysis in this evaluation of cumulative impacts.

Rationale for Inclusion

The following criteria were applied to existing projects and RFDs across the region to compile a list of projects whose effects may combine with the impacts of the Proposed Action to further stress resources of concern or have the potential to create new resources of concern:

- Potential past and present actions or RFDs in the same geographic area that share resources in common with the Proposed Action. This analysis deemed 30 miles to be the absolute maximum upper geographic threshold for the inclusion of renewable energy projects and 20 miles for the inclusion of roadway and commercial and industrial projects. Projects that may share or impact the same resources include the following:
  - Wind farms
  - Solar farms
  - Energy storage facilities
  - Transmission line improvements
  - Roadway projects
  - Commercial or industrial developments

- Projects that have the potential to cause a migration of contaminants beyond their boundaries. For example, these existing projects or RFDs that could potentially affect air quality or water quality locally or on a regional basis
- Projects that, together with the Proposed Action, could result in a fragmenting of habitat
- Projects that could cause changes in land use or historic character through residential, commercial, or industrial development

Rationale For Exclusion

The following criteria were applied to past and present actions and RFDs from across the region to exclude them from this analysis of cumulative impacts:

- Projects that lack affected resources similar to those that would be affected by the Proposed Action.
- Projects that are located beyond the distance thresholds for inclusion.
- Presence of a significant geographic feature or land use feature that occurs between the past or present action or RFD, and the Proposed Action, that would prevent a nexus of impacts and resources. A significant geographic feature or land use would be a major topographical feature, a large body of water, or a large urban community or multiple smaller communities.

5.2.1.3 Step 3: Cumulative Impacts Analysis

Impacts of Proposed Action and Existing or Reasonably Foreseeable Developments

When combined with other actions affecting the natural and built environment, the activities addressed by this EIS could lead to cumulative impacts. The scale of those cumulative impacts depends on the project and the sensitivity of resources susceptible to cumulative impacts. **Table 5-2** provides an analysis of impacts from the Project and cumulative impacts from the Proposed Action and past and present actions and RFDs. If it is determined that the Proposed Action would considerably contribute in a distinctive manner or a noticeably measurable way to cumulative impacts to a resource topic within the applicable spatial and temporal setting, an additional discussion of cumulative impact specific to the resource and the Washington Energy Facility Site Evaluation Council's (EFSEC's) determination of significance is presented in Section 5.2.2.

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Table 5-1: Existing and Reasonably Foreseeable Developments Included in the Cumulative Impact Analysis

Project	Description	Distance from Proposed Action (miles)	Construction Date and Operations Timeframe of Past and Present Actions	Anticipated Date for RFD Construction	Primary Resources in Common with the Proposed Action
Agrium U.S.	Agrium U.S. employs approximately 120 people at the Kennewick branch location and is engaged in chemical manufacturing activities at this facility. Agrium U.S. maintains a Title 5 Air Quality Permit.	3.2	Operated since 1959 with various facility expansions and closures.	Not Applicable	Air Quality, Water Resources, Energy and Natural Resources
Stateline Wind Project	This project is a wind energy facility consisting of two units—Stateline 1 & 2 and Vansycle II. Stateline 1 & 2 is composed of 186 wind turbines and has a peak generating capacity of up to 123 MW. Vansycle II consists of 43 wind turbines with a peak generating capacity of 99 MW.	12.6	Stateline was built in multiple phases between the years 2001 and 2002; Vansycle II was constructed in 2009.	Not Applicable	Wildlife, Habitat, and Visual and Aesthetics
Nine Canyon Wind Project	Constructed in three phases between 2002 and 2008, this project includes 63 wind turbines with a maximum generating potential of 95.9 MW of electricity. Phases I and II included a total of 49 turbines, each capable of producing 1.3 MW. The third phase expansion began in September 2007 and was completed in 2008. The third phase added 14 larger turbines, each capable of producing 2.3 MW of power.	0.5	Constructed in three phases between 2002 and 2008.	Not Applicable	Wildlife, Habitat, and Visual and Aesthetics
Port of Kennewick's Vista Field Redevelopment Project	The Port of Kennewick would sell or lease parcels and then use those proceeds to fund each phase of infrastructure until all 103 acres are developed. At full build-out, Vista Field is expected to add 750,000 square feet of retail, office, service, and entertainment and fulfill 1% of the region's anticipated growth over the next 20 years.	6.5	The official groundbreaking occurred in 2019. The Grand Opening for the initial phase would occur in June 2022.	Not Applicable	Public Services and Utilities, Earth Resources, Water Resources, and Air Quality
City of Kennewick & Port of Kennewick - Clover Island Shoreline Transformation	This project would use a portion of the City of Kennewick's Rural County Capital Fund allocated funding to improve public infrastructure and prepare commercial building sites in the form of shoreline stabilization, extension of certain utilities, construction of trails, installation of drainage infrastructure, and landscaping. The Clover Island Shoreline Transformation would support the shovel-ready preparation of three parcels owned by Port of Kennewick totaling 3.24 developable and marketable acres on Clover Island for food service, lodging, tourism, and other related businesses.	6.8	Contracts were issued for development in 2021.	In-Progress	Public Services and Utilities, Earth Resources, Water Resources, and Air Quality
City of Kennewick & Port of Kennewick - Columbia Gardens Phase 1	The intent of Columbia Gardens Phase 1 is to provide space for restaurants, wine tasting rooms, and other related businesses. This project would construct public infrastructure (extension of water, sewer, electrical and effluent utilities) and roads, storm drainage, lighting, landscaping, and parking areas to support the Port's construction of two buildings on a 6-acre site. The Columbia Gardens project is expected to result in more than 100 permanent jobs.	6.5	Project approved by Benton County Board of County Commissioners in 2017.	Not Applicable	Earth Resources, Water Resources, Air Quality, and Public Services and Utilities

Table 5-1: Existing and Reasonably Foreseeable Developments Included in the Cumulative Impact Analysis

Project	Description	Distance from Proposed Action (miles)	Construction Date and Operations Timeframe of Past and Present Actions	Anticipated Date for RFD Construction	Primary Resources in Common with the Proposed Action
County Well Road-Phase I State Road 221 to McBee (3.0 miles)	County Well Road - Phase I is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026. Portions of County Well Road intersect the Lease Boundary. County Well Road extends more than 7 miles in Benton County, Washington. Classified as a rural minor collector by the Washington State Department of Transportation the road sees heavy truck traffic during the farming season. This project is the first phase of a three-part series that would reconstruct nearly 7 miles of the road to an all-weather standard and work to improve safety and drainage.	0	County Well Road - Phase I is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
County Well Road - Phase II McBee to Clodius (2.0 miles)	This project is the second phase of a three-part series that would reconstruct nearly 7 miles of the road to an all-weather standard and work to improve safety and drainage.	0	County Well Road - Phase II is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
County Well Road-Phase III Clodius to County Pit (1.8 miles)	This project is the final phase of a three-part series that would reconstruct nearly 7 miles of the road to an all-weather standard and work to improve safety and drainage.	0	County Well Road - Phase III is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
Finley Road Mile Post 5.2 to End of Pavement (2.1 miles)	The Finley Road project would improve 2.1 miles of gravel Finley Road to a paved, all-weather standard and establish proper widths.	2.4	Finley Road is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022–2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
Dague Road Terrill to Game Farm (0.5 miles)	Dague Road is a proposed 0.5-mile, paved, all-weather road that would connect E Game Farm Road to East Terrill Road in Finely, Washington, southeast of Kennewick.	2.0	Dague Road is included in Benton County's Six-Year Transportation Implementation Plan for 2021–2026.	Estimated timeframe 2022-2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation
Richland–Stevens Drive 115-kV line rebuild project[(a)]	The Bonneville Power Administration is proposing to rebuild the 115-kilovolt power line between Richland Substation and Stevens Drive Substation in the Tri-Cities, Washington. Rebuilding the line will allow BPA to add another circuit to the line, in essence, creating two lines where now there is only one.	6.7	The transmission line rebuild and substation work is estimated to be energized in late 2025 or 2026.	Estimated timeframe 2025-2026	Earth Resources, Water Resources, Vegetation, Air Quality, Wildlife and Habitat, and Transportation

Sources: See Chapter 6, References – Sources of Cumulative Impact Projects
Note:
[(a)] Richland-Stevens Drive 115-kV line rebuild project was added to Table 5-1 following publication of the Draft EIS.
BPA = Bonneville Power Administration; MW = megawatts; RFD = reasonably foreseeable development

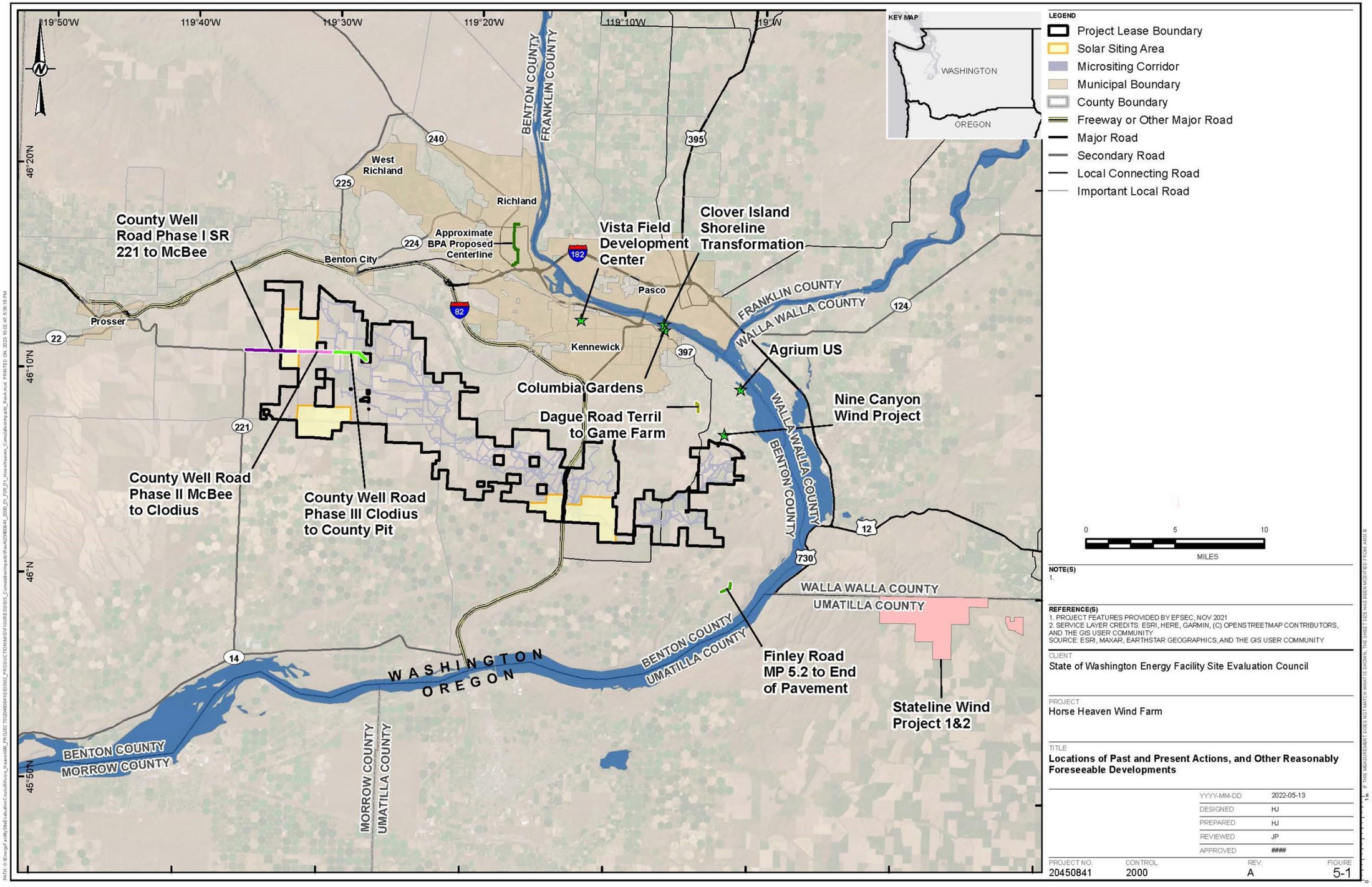

Figure 5-1: Location of Past and Present Actions, and Other Reasonably Foreseeable Developments

Table 5-2: Cumulative Impacts with Proposed Action

Resource	Impacts from Proposed Action Alone	Cumulative Impacts from the Proposed Action and Past and Present Actions and RFDs
Earth	Geologic hazards, sedimentation, and fugitive dust	**From the Project:** Impacts on geology, soil, topography, and geologic hazards would occur because of constructing access roads, tower foundations, transformer pads, and other project facilities. **From Past and Present Actions and RFDs:** Impacts on earth resources from past and present actions and RFDs would be limited to localized, temporary erosion impacts from ground disturbance during construction. The impacts on soils would be within the construction footprint for the respective project; they would not geographically overlap each other. **Conclusion:** The Proposed Action does not meaningfully contribute to a cumulative impact on geologic hazards and sedimentation within the spatial and temporal setting.
Air Quality	Fugitive dust ($PM_{2.5}$ and PM_{10})	**From the Project:** Cumulative impacts on air quality in terms of $PM_{2.5}$ and PM_{10} are unlikely to occur because the relative contribution of emissions from the Project are extremely small in comparison to the regional emissions inventory. **From Past and Present Actions and RFDs:** Cumulative impacts on air quality in terms of $PM_{2.5}$ and PM_{10} are unlikely to occur because the relative contribution of emissions from the Project are extremely small in comparison to the regional emissions inventory. **Conclusion:** The Proposed Action does not meaningfully contribute to the overall cumulative impact on air quality within the spatial and temporal setting.
Water Resources	Change in surface water runoff or absorption, change in water quality, impacts on ephemeral and intermittent streams, impacts on floodplains	**From the Project:** Impacts from the construction and operation of the wind turbines, solar arrays, substations, BESS, and transmission lines may result in impacts on ephemeral and intermittent streams, floodplains, surface water runoff and absorption capacity, and water quality. These impacts are anticipated to be temporary and localized. Potential impacts from decommissioning are not expected to be additive to impacts from past and present actions and RFDs and are therefore not expected to contribute to cumulative negative effects. **From Past and Present Actions and RFDs:** Impacts on water resources from past and present actions and RFDs are also anticipated to be limited to localized and temporary impacts and are not expected to result in cumulative impacts. **Conclusion:** The Proposed Action does not meaningfully contribute to cumulative impacts on water resources.
Vegetation	Loss of Priority Habitat, loss of other vegetated areas, and loss of suitable habitat for special status plant species	**From the Project:** Impacts from construction and operation of the wind turbines, solar arrays, substations, BESS, transmission lines, roads (new and upgraded), and associated Project infrastructure, when combined with impacts from past and present actions and RFDs, would result in cumulative long-term loss of Priority Habitat and suitable habitat for special status plant species. The operation of the Project may also contribute to degradation of Priority Habitat and suitable habitat for special status plant species adjacent to Project infrastructure such as roads from invasive plants and dust. Potential impacts from decommissioning are not expected to be additive to impacts from past and present actions and RFDs and are therefore not expected to contribute to cumulative negative effects. **From Past and Present Actions and RFDs:** Past and present actions and RFDs located within Priority Habitat areas (e.g., Sagebrush shrub-steppe) would contribute to habitat loss and alteration. Similarly, loss of suitable habitat for special status plant species in the area would contribute to habitat fragmentation or isolation of populations. **Conclusion: The Proposed Action would meaningfully contribute to cumulative impacts on Priority Habitat and special status plant species.**
Wildlife and Habitat	Loss of habitat, loss of habitat for special status wildlife, indirect loss of habitat through displacement and behavioral changes, mortality, barriers to movement	**From the Project:** Impacts from the construction and operation of the wind turbines, solar arrays, substations, BESS, and transmission lines when combined with impacts from past and present actions and RFDs would result in cumulative long-term wildlife habitat loss (direct and indirect), and barriers to wildlife movement. Operation of the Project, particularly the wind turbines, may also, when combined with impacts from past and present actions and RFDs, contribute to the cumulative mortality of wildlife. Potential impacts from decommissioning are not expected to be additive to impacts from past, present, and RFDs and are therefore not expected to contribute to cumulative negative effects. **From and Past Present Actions, and RFDs:** Past and present actions and RFDs located on natural habitat (e.g., shrub-steppe) and modified habitat used by wildlife (e.g., agricultural lands) would contribute to the loss and alteration of wildlife habitat. Similarly, projects situated on natural habitat and linear projects (e.g., roadways) would contribute to habitat fragmentation and barriers to wildlife movement. Existing developments and RFDs, particularly wind power projects, would contribute to the mortality of local wildlife—notably, aerial species (birds and bats). **Conclusion: The Proposed Action would meaningfully contribute to a cumulative impact on habitat loss and degradation, habitat loss for special status wildlife species, barriers to movement, and wildlife mortality.**
Energy and Natural Resources	Resource availability, disruption of supply chains	**From the Project:** The Project would require electricity, gasoline, and diesel fuel to power portable generators, construction vehicles, and other equipment required for development and operation of the proposed facility. Mineral and earth resources such as iron ore, gravel, and concrete would be required for development of the Proposed Action. These resources are readily available within Benton County, Washington State, and the United States. Existing supply chains are sufficient to meet the Proposed Action's current and future needs. **From Past and Present Actions and RFDs:** Commercial, industrial, and transportation projects listed in **Table 5-1** would contribute to cumulative impacts to energy and natural resources because they would require similar resources for construction and operation as the Proposed Action. These projects would require mineral and earth resources, gasoline, and diesel fuel for construction and operations. These materials and energy sources are readily available throughout southeastern Benton County, Washington State, and the United States. **Conclusion:** If existing and future actions require energy and natural resources beyond what is currently available, modifications to supply chains and infrastructure would be altered to meet future demand. Therefore, the Proposed Action's requirements do not meaningfully contribute to a cumulative impact on availability of energy and natural resources within the spatial and temporal setting.

Table 5-2: Cumulative Impacts with Proposed Action

Resource	Impacts from Proposed Action Alone	Cumulative Impacts from the Proposed Action and Past and Present Actions and RFDs
Land and Shoreline Use	Agricultural productivity, profitability, and farm operations	**From the Project:** The Project would be located in an area zoned for agricultural activities. Additionally, the Project is in alignment with Benton County Code zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a conditional use permit. This zoning ordinance allows commercial wind farms with approval of a conditional use permit issued by the Board of County Commissioners. During construction of the Project, the potential would exist for construction-related traffic, noise and vibration, and air emissions to result in some temporary cumulative impacts on agricultural production and farm profitability within the spatial setting. Mitigation measures identified by EFSEC would address impacts on farm profitability and operations. Additionally, lease payments provided to participating farmers and ranchers would have beneficial financial impacts on their agricultural businesses. During operation, the Project would be expected to operate consistent with local land use regulations and would not be expected to result in changes to land uses or development patterns different from those envisioned by Benton County's comprehensive land use plans. Mitigation measures and zoning ordinances would require that decommissioning of the proposed action be in alignment with the environmental setting. **From Past and Present Actions and RFDs:** The potential exists for the development of properties within the spatial setting to continue to occur on an incremental basis consistent with adopted local policies, regulations, and allowable uses. The past and present actions and RFDs listed in **Table 5-1** would be required to comply with applicable plans, policies, and development standards. During construction of RFDs, the potential would exist for construction-related traffic, noise and vibration, and air emissions to result in some temporary cumulative impacts on agricultural production and farm profitability within the spatial setting. These cumulative impacts would be temporary, occurring during the period of construction. While future development may result in a different type of land use in a particular location, that use would most likely be consistent with applicable plans, policies, and regulations and would therefore not be considered a cumulative impact to land and shoreline use. Improvement in rural roadways and lease payments from renewable energy projects to farmers would support long-term farm profitability and operations. **Conclusion:** With mitigation measures and the continued authority of Benton County zoning ordinances and land use requirements, the Proposed Action does not meaningfully contribute to a cumulative impact on agricultural productivity, profitability, or farm operations within the spatial and temporal setting.
Historic and Cultural Resources	Movement, alteration, and/or destruction of historic and cultural resources through ground disturbance, construction, and/or facility operation; loss of access to historic and cultural resources	**From the Project:** Impacts from the construction and operation of the wind turbines, solar arrays, substations, BESS, and transmission lines would include ground disturbance, viewshed alteration, and restricted access to Traditional Cultural Properties. Changes to landforms, views, and accessibility would contribute to cumulative negative effects on historic and cultural resources by impacting the nature and use of the landscape. **From Past and Present Actions and RFDs:** Past and present actions and RFDs have cumulatively impacted the integrity of historic and cultural resources—specifically, their location, setting, feeling, and/or association. **Conclusion: Due to changes in the nature and use of the landscape, the Proposed Action would meaningfully contribute to a cumulative impact on historic and cultural resources.**
Visual Aspects, Light and Glare	Domination of views, creation of shadow flicker, visible lighting, and glare	**From the Project:** Impacts from operation of the wind turbines, solar arrays, substations, BESS, and transmission lines would generate long-term visual aspects, lighting, and sources of glare in the confined, local, and regional settings. Project aspects would dominate the existing setting and adjacent views, include visible light, and be a source of glare. There would be no cumulative impacts from construction or decommissioning as these visual aspects, glare, and light sources would be short term or temporary. **From Past and Present Actions and RFDs:** Past and present actions and RFDs have led to a cumulative impact on the spatial setting's visual aspects as they have modified the natural setting as well as introducing sources of lighting and glare. **Conclusion: The Proposed Action meaningfully contributes to a cumulative impact on visual aspects within the spatial setting**.
Noise and Vibration	Noise and the potential for vibration	**From the Project:** Impacts from operations of the wind turbines, solar arrays, substations, BESS, and transmission lines would generate long-term noise sources that could add to the present and RFDs in the local settings, but not regionally. Project aspects would generate noise that would be audible at the Lease Boundary and at neighboring receptors. There would be no cumulative impacts from construction or decommissioning as the noise and vibration sources would be temporary and limited to the area of construction and decommissioning. **From Past and Present Actions and RFDs:** Impacts from past and present actions and RFDs have the potential to cumulatively impact local noise environments. **Conclusion: The Proposed Action meaningfully contributes to a cumulative impact on the local noise environment in the spatial setting.**
Recreation	Recreational activities could be altered, or recreationists could be unable to use the resource altogether; quality of recreational experience for recreationists may change considerably; continuance of recreational activities in the area of the Project could lead to public health and safety concerns.	**From the Project:** Impacts from the Proposed Action's construction and operations would result in the change in the quality of recreational experience of recreationists. **From Past and Present Actions and RFDs:** Impacts from past and present actions and RFDs have the potential to impact recreation—specifically, the use, quality of the experience, and health and safety of recreationists. **Conclusion: The Proposed Action meaningfully contributes to a cumulative impact on recreational resources due to changes in the use, quality of the experience, and the health and safety of recreationists.**

Table 5-2: Cumulative Impacts with Proposed Action

Resource	Impacts from Proposed Action Alone	Cumulative Impacts from the Proposed Action and Past and Present Actions and RFDs
Public Health and Safety	Fire, smoke and haze, hazardous materials release	**From the Project:** Impacts from hazardous materials releases, fire, and resulting smoke and haze may result from construction of the wind turbines, solar arrays, substations, BESS, and transmission lines, and operation and decommissioning of the Project. Impacts related to fire and hazardous materials release would be localized and temporary. Smoke and haze resulting from fire caused by the Project would be a regional impact because smoke can travel long distances. **From Past and Present Actions and RFDs:** The past and present actions and RFDs listed in **Table 5-1** have the potential to cause localized fires or hazardous materials spills. The Project would not contribute to cumulative impacts because these impacts would be localized and temporary. Controls would be in place to minimize Project impacts related to fire and hazardous materials spills. Smoke and haze could contribute to cumulative impacts if fires caused by existing projects or RFDs were to occur simultaneously, although this would be unlikely. Controls to minimize impacts related to fires would also reduce the likelihood of Project smoke and haze impacts. Although it is possible that fires caused by the Project and RFDs could occur at the same time, this scenario is very unlikely. **Conclusion:** The Proposed Action does not meaningfully contribute to a cumulative impact on public health and safety.
Public Services and Utilities	Level of service and safety	**From the Project**: Regulations and programs exist within Washington whose intent are to reduce the potential for interference with existing utilities during construction, operation, and decommissioning. **From Past and Present Actions and RFDs:** The past and present actions and RFDs listed in **Table 5-1** do not suggest a large increase in demand for utilities or public services; for instance, the number of transportation projects listed would not have a demand for the provision of utilities and would generally not have permanent need for service. **Conclusion:** The Proposed Action does not meaningfully contribute to a cumulative impact on level of service and safety within the spatial and temporal setting.
Transportation	Construction and decommissioning of the Project would lead to increased traffic volumes that would decrease the Level of Service of traffic routes; may lead to loss of access to public resources; and potentially cause a decrease in roadway safety.	**From the Project:** Impacts on transportation would occur during construction and decommissioning of the Project as a result of the decrease in level of service of traffic routes and loss of access to public resources and would potentially cause a decrease in roadway safety. **From Past and Present Actions and RFDs:** The past and present actions and RFDs listed in **Table 5-1** have the potential to cause similar impacts to those listed for the Project. **Conclusion:** Impacts on transportation would be short term during the construction and decommissioning of the Project. If other projects were constructed or decommissioned contemporaneously, contributions to cumulative impacts on transportation resources would be considerable. **Therefore, depending on the construction timing of RFDs, the Proposed Action has the potential to meaningfully contribute to impacts on transportation within the spatial and temporal setting.**
Socioeconomics	Housing Availability	**From the Project:** Project construction, operation, and decommissioning could impact populations onsite and adjacent to the site through Project-related impacts to housing availability. **From Past and Present Actions and RFDs:** The types of projects listed in **Table 5-1** do not indicate a need for an expanded workforce that would cause an increase in rental prices for housing within the spatial setting or change in demographics. For instance, transportation improvement projects, once complete, would no longer require a large number of staff to maintain the roadways. **Conclusion:** Vacant housing with abundant short-term rental options exists throughout the socioeconomic study area and spatial setting for this cumulative impact analysis. Mitigation measures would address and minimize the severity of impacts on the environmental setting. Therefore, the Proposed Action would not meaningfully contribute to a cumulative impact on housing availability.

BESS = battery energy storage system; EFSEC = Washington Energy Facility Site Evaluation Council; $PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter; PM_{10} = particulate matter less than or equal to 10 microns in diameter.

5.2.2 Identification of Meaningful Contributions to Cumulative Impacts and Determination of Significance from the Proposed Action

This section provides additional analysis for the resource topics listed in **Table 5-2** that would be subject to meaningful cumulative impacts from the Proposed Action within the defined spatial and temporal setting. This section also includes an analysis of the No Action Alternative. The No Action Alternative was included to demonstrate the extent of the cumulative impact from past and present actions and RFDs on the identified resources. While a determination of significance cannot be made for the whole of the past and present actions and RFDs for the identified resources, the presentation of the No Action Alternative indicates what the resource's status would be if the Proposed Action were not built.

Vegetation (Proposed Action)

As noted in **Table 5-2**, Project-related impacts on vegetation resources during Project construction and operation may contribute to cumulative impacts occurring regionally. While Project-related disturbance has been mostly sited within previously disturbed areas (e.g., agricultural land and developed/disturbed areas), Project construction would result in temporary and permanent disturbance to Priority Habitats, including sagebrush shrub-steppe and Eastside (interior) grasslands. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. While it has been determined that the Proposed Action would meaningfully contribute to a cumulative impact on vegetation, the magnitude of that impact is dependent on the final design and implementation of the Proposed Action. The potential exists for a final design that lessens the residual impact and reduces the Proposed Action's contribution to cumulative impacts on priority habitats and native plant species.

The Washington Department of Fish and Wildlife (WDFW) estimates that 80 percent of historic shrub-steppe habitat in Washington State has been lost or degraded from past development, including conversion to agriculture land (WDFW 2022a). Jansen (2023) reports that shrub-steppe land cover decreased by 13% (approximately 700,000 acres) between 2006 and 2019, although grassland cover increased by 10% (approximately 500,000 acres). Remaining patches of Priority Habitat are small and are becoming increasingly isolated. These factors make remaining patches of Priority Habitat vulnerable to further degradation from surrounding development (e.g., spread of invasive plants) and, potentially, to further loss from random events (e.g., large-scale wildfire).

The Project would be situated near known populations of special status plant species, mainly woven-spore lichen (*Texosporium sancti-jacobi*). Woven-spore lichen is associated with undisturbed shrub-steppe and grassland communities (DNR n.d.), which are present within the Lease Boundary. The proximity of present actions and RFDs presents the potential for further isolation of remaining populations. Loss of Priority Habitat and loss of native plant species, particularly native bunchgrasses, may impact the persistence of woven-spore lichen in the region considering past and present actions and RFDs.

Vegetation (No Action Alternative)

In the No Action Alternative, Priority Habitats and populations of special status plant species in the Project Lease boundary would not be altered or lost. Priority Habitats have historically been converted to agricultural lands, urban areas, and developments for resource extraction. In particular, the conversion to cropland has highly fragmented the remaining native shrub-steppe and grasslands. Similarly, the spatial extent of special status species that depend on these habitat types has been reduced. This trend is consistent for sagebrush shrub-steppe throughout eastern Washington, where sagebrush ecosystems are becoming increasingly fragmented by the expansion of communities and industries. Impacts from the past and present actions and RFDs listed in **Table 5-1** would result in similar adverse effects. These major threats to Priority Habitats are expected to persist

in the No Action Alternative. Further, the impacts of these threats are expected to be exacerbated by the impacts of alterations associated with climate change (WDFW 2022a).

EFSEC Determination: The Proposed Action meaningfully contributes to cumulative impacts for loss and degradation of Priority Habitat and special status plant species.

Wildlife and Habitat (Proposed Action)

As noted in **Table 5-2**, Project-related impacts on wildlife and habitat during Project construction and operation may contribute to cumulative impacts occurring regionally. The Project is predicted to result in the permanent disturbance of natural (e.g., shrub-steppe) and modified habitat (agricultural land). Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. Natural habitats, particularly State Listed Priority Habitat (e.g., shrub-steppe) have been impacted by past developments, and permanent loss or alteration of these natural habitats associated with the Project would be additive to these past, present, and future losses resulting in cumulative habitat loss. While it has been determined that the Proposed Action would meaningfully contribute to a cumulative impact on wildlife and habitat, the magnitude of that impact is dependent on the final design and implementation of the Proposed Action. The potential exists for a final design that lessens the residual impact and reduces the Proposed Action's contribution to cumulative impacts on special status wildlife species and priority habitats.

WDFW estimates that 80 percent of historic shrub-steppe habitat in Washington State has been lost or degraded (WDFW 2022a). Similarly, indirect habitat loss through behavioral changes and displacement of wildlife associated with the construction and operation of the Project may be additive with similar disturbances associated with other regional projects and developments to further reduce the suitability and use of natural habitats. Creation of mitigation habitat (e.g., offset) associated with the Project is expected to reduce the Project's contribution to cumulative impacts on habitat. Cumulative loss and modification of natural habitat is expected to be more notable for special status species (see Section 3.6 for definition), as these populations are generally affected in the existing conditions, prior to consideration of the Project, due to historical changes to the landscape. Specific to the Project, cumulative effects on special status species associated with sage brush habitat, such as sagebrush lizard (*Sceloporus graciosus*), sage thrasher (*Oreoscoptes montanus*), sagebrush sparrow (*Artemisiospiza nevadensis*), and Townsend's ground squirrel (*Urocitellus townsendii towsendii*), are expected to be more notable as past and present actions have reduced the regional habitat capacity for this group of species.

The Project would be situated near mapped wildlife movement corridors, and, if the final siting of Project components were to result in loss of habitat within those corridors, the Project could contribute to the cumulative barriers to wildlife movement over the landscape created by past and present actions and RFDs in the region. The final Project siting has not been completed, and if major Project components, such as solar arrays, are not located on mapped movement corridors, the Project's contribution to cumulative barriers to movement would be reduced. Wider-ranging special status species, such as pronghorn antelope (*Antilocapra americana*), are expected to be more influenced by cumulative barriers to movement as these barriers can reduce animals' ability to move between habitats on the landscape. The culmination of development, roadways, and projects creates a fragmented network of habitat types and introduces obstacles that can deter wildlife movement (e.g., roads) or require wildlife to expend additional energy to move around (e.g., fences).

The Project is expected to result in wildlife mortality during construction and operation, predominantly associated with birds and bats during the operation of wind turbines. Mortality of aerial species associated with the Project is expected to occur cumulatively with mortality associated with other regionally occurring projects, particularly other

wind power projects such as the Nine Canyon and Stateline Wind Projects. Using aggregated mortality data from 65 operating wind facilities in the Columbia Plateau Ecoregion (CPE; Washington and Oregon), Jansen (2023) estimated that approximately 17,369 bird (excluding raptors) fatalities occur per year (based on 2.57 birds/MW/year). Similarly, Jansen (2023) estimated that wind facilities in the CPE result in 793 raptor mortalities (0.12 birds/MW/year) and 7,292 bat mortalities (1.08 birds/MW/year). Species recognized as having a greater risk of interacting with wind turbines, such as horned lark (*Eremophila alpestris*), hoary bat (*Lasiurus cinereus*), and silver-haired bat (*Lasionycteris noctivagans*), as well as special status species that are at risk of collision with turbines (e.g., American white pelican [*Pelecanus erythrorhynchos*] and sandhill crane [*Antigone canadensis*]) are identified in Section 4.6. While horned lark may comprise the majority of wind facilities mortalities, Jansen (2023) estimated that development of wind energy facilities may cumulatively have a greater effect on the ruby-crowned kinglet (*Corthylio calendula*) population in the CPE as this species has a smaller population than horned lark. Jansen (2023) concluded; however, that mortality rates for both species from wind energy facilities were not estimated to exceed the resilience of these species. In contrast, mortality levels from wind energy facilities on ferruginous hawk (*Buteo regalis*) would be additive with other sources of anthropogenic and natural mortality, contributing to cumulative impacts on this species. Bat mortality from wind facilities is expected to be additive with other sources of bat mortality (e.g. white nose syndrome), contributing to cumulative impacts.

Finally, the Project is anticipated to have the potential for high-magnitude effects on ferruginous hawk due to its proximity to active nests (i.e., nests recorded during Project surveys that were occupied by a ferruginous hawk or its egg), impacts on foraging habitat, and potential to result in mortality. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the high-magnitude effect. This species is state-listed as endangered, partially due to the cumulative loss of range within Washington State, as well as mortality from electrocution and collisions with turbines (WDFW 2022b).

Habitat loss and mortality associated with the Project are expected to be additive to past and present actions and RFDs in the region, resulting in cumulative impacts on the species. Cumulative habitat loss can be attributed to the nibbling effects of conversion of lands from native shrub-steppe due to projects and other developments. Similarly, ferruginous hawk mortalities may occur at a variety of project sites; however, the greatest risk of mortality for this species is expected to occur at projects that create obstacles within the raptor's flight path, such as powerlines and wind power projects. Therefore, the impacts of mortality from the Project are expected to be additive to similar projects (transmission lines and wind power projects) in the region while being less likely to be additive with ground-level projects, such as road construction.

Wildlife and Habitat (No Action Alternative)

In the No Action Alternative, wildlife populations, habitats, and movement corridors in the Project Lease Boundary would continue to function and persist following similar trends as current conditions. Wildlife habitat and movement corridors have regionally been impacted by alteration and development on natural habitats. Impacts from the past and present actions and RFDs listed in **Table 5-1** would result in similar adverse effects to wildlife habitats and movement corridors as have occurred regionally. Pressures on habitats and movement corridors are expected to persist in the region in the No Action Alternative. The short- and long-term population trends (increasing, stable, decreasing) of Priority wildlife species with potential to occur in the Lease Boundary are described in Table 3.6-3. These trends are expected to persist in the No Action Alternative, with species populations currently reported to be declining and continuing to decline.

EFSEC Determination: The Proposed Action meaningfully contributes to cumulative impacts for habitat loss and degradation, barriers to movement, wildlife mortality, and special status species.

Historic and Cultural Resources (Proposed Action)

As noted in **Table 5-2**, Project-related impacts on historic and cultural resources may contribute to cumulative impacts within the spatial and temporal setting of the Proposed Action. Changes to the nature and use of the landscape are likely to result from the construction and operation of the Project and from past and present actions and RFDs. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. Cumulative impacts from ground disturbance, viewshed alteration, and restricted access to Traditional Cultural Properties are likely to alter the nature and use of the landscape. Cumulative impacts from past and present actions and RFDs may affect the location, setting, feeling, and/or association of historic and cultural resources, resulting in a potential loss of the integrity of these resources.

Historic and Cultural Resources (No Action Alternative)

Under the No Action Alternative, historic and cultural resources within the Project Lease Boundary would continue to persist following similar trends as current conditions. Ground disturbance and construction activities may result in movement, alteration, and/or destruction of historic and cultural resources. Impacts from the past and present actions and RFDs listed in **Table 5-1** would result in similar adverse effects. Continued deterioration of historic-period cultural materials, such as metal and glass artifacts, can be expected. Displacement of precontact and historic-period cultural materials and subsurface deposits is likely through natural processes such as erosion and disturbance of sedimentary deposits by living organism. The trend of deterioration and displacement through natural processes is expected to persist in the No Action Alternative; however, deterioration and displacement take place over long timespans and do not result in the complete destruction of cultural materials.

EFSEC Determination: Project meaningfully contributes to cumulative impacts for historic and cultural resources, including changes to the nature and use of landscape.

Visual Aspects

As noted in **Table 5-2**, Project-related impacts on visual aspects may contribute to cumulative impacts within the spatial and temporal setting of the Proposed Action. Modifications of the existing landscape character, as well as the introduction of lighting and sources of glare, would occur from the operation of the Project and from past and present actions and RFDs. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. These effects include dominating the area's landscape character through the introduction of large-scale energy infrastructure, as well as dominating views from viewing locations where the setting would appear heavily modified. In combination with past and present actions and RFDs, the visual impacts from the Proposed Action are expected to be additive to similar projects (transmission lines and wind power projects) in the region while being less likely to be additive with ground-level projects, such as road construction.

Visual Aspects (No Action Alternative)

Under the No Action Alternative, past and present actions and RFDs would continue to modify the area's landscape character but due to the scale of these projects, the regional landscape character would not be dominated by large-scale energy infrastructure. Views may be locally dominated by these projects, but their influence on views would diminish with distance resulting in minimal impacts on the regional setting. Regarding light, if the No Action Alternative occurs, there would continue to be modifications to minor sources of visible light from the projects listed in **Table 5-1**. Past and present actions and RFDs have not contributed glare to the spatial setting.

EFSEC Determination: The Proposed Action meaningfully contributes to cumulative impacts for visual aspects, including alteration of landscape character and introduction of sources of lighting and glare.

Noise (Proposed Action)

As noted in **Table 5-2**, Project-related operational impacts on noise may contribute to cumulative impacts within the spatial and temporal setting of the Proposed Action. Project aspects would generate noise that would be audible at the Lease Boundary and neighboring receptors. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect. Impacts from long-term noise sources could add to the present developments and RFDs in the local settings, but not regionally. In combination with past and present actions and RFDs, the noise impacts from the Proposed Action are expected to be additive to similar projects (wind power and solar projects) and other sources of noise, including agricultural and transportation on the local level, but less likely to affect regional noise levels.

Noise (No Action Alternative)

Under the No Action Alternative, past and present actions and RFDs listed in **Table 5-1** would continue to include temporary and long-term noise sources that would impact the local noise environment, but not in the regional setting. The projects listed in **Table 5-1** would cause short-term impacts during construction, but the effects would be localized and temporary. Long-term sources of vibration that could contribute to cumulative impacts were not identified amongst the projects listed in **Table 5-1**.

EFSEC Determination: The Proposed Action meaningfully contributes to cumulative impacts for audible noise generation for Project receptors.

Recreation (Proposed Action)

As noted in **Table 5-2**, Project-related impacts on recreation resources would contribute to cumulative impacts occurring regionally. Impacts on recreational use, quality of experience, and health and safety of recreationists would occur during Project construction and operation. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect.

The Project would be situated near paragliding launching and landing sites with flight paths directly over proposed turbine and solar field locations. The Project area is frequently used for biking and hiking, with recreationists using public land within the Project area or near the extent of the Project boundary. The Applicant proposes to construct solar arrays on a parcel of land administered by the Washington Department of Natural Resources, limiting recreational activities to outside the solar field's fence.

Cumulative impacts from past and present actions and RFDs may also affect recreational use, quality of experience, and health and safety of recreationists. Cumulative loss of the use for recreation resources occurs when lands, frequently used for recreation activities, are taken out of use during the construction and operation of non-recreation projects or recreation activities are indirectly impacted by projects (e.g., visual, noise, etc.).

Recreation (No Action Alternative)

Under the No Action Alternative, the past and present actions and RFDs listed in **Table 5-1** would continue to modify the area's recreation opportunities. Recreationists would experience the change in use, recreational experience, or the potential of decreased public health and safety during the activity. Depending on the identified RFD, crowding or loss of use altogether may occur or values that a recreationist deems as important to their individual experience may become altered.

EFSEC Determination: The Proposed Action meaningfully contributes to cumulative impacts for use and quality of recreation resources and safety and access of recreationists.

Transportation (Proposed Action)

As noted in **Table 5-2**, Project-related impacts on transportation resources may contribute to cumulative impacts occurring regionally. Short-term impacts on the level of service of traffic routes, access to public resources, and roadway safety are expected during Project construction and decommissioning. Mitigation measures have been identified for these impacts that, when implemented, are expected to reduce the magnitude of effect.

Cumulative impacts from past and present actions and RFDs have the potential to affect the level of service of traffic routes, cause loss of access to public resources, and decrease roadway safety if constructed or decommissioned contemporaneously.

Transportation (No Action Alternative)

Under the No Action Alternative, past and present actions and RFDs listed in **Table 5-1** would continue to modify the area's traffic patterns, level of service, and transportation requirements, especially during construction and decommissioning of the identified Projects. Due to the scale of these RFDs, traffic patterns are likely to change during construction and decommissioning, level of service would decrease but only for the short term, and roads and intersections may continue to be altered to provide access to heavy and oversize loads.

EFSEC Determination: The Proposed Action meaningfully contributes to cumulative impacts for traffic volumes, level of service, and roadway safety.

5.2.2.1 Summary of Combined Determination of Significance

Table 5-3 presents the resources that the Proposed Action would cumulatively impact in a meaningful way, along with the significance determination of those impacts. It describes the direct or indirect impact that the Proposed Action would have for each resource, and whether that impact would be significant with the identified recommended mitigation measures implemented. Finally, it indicates whether that impact would make a meaningful contribution to a cumulative impact when combined with past and present actions and RFDs.

Table 5-3: Cumulative Impact Analysis Summary

Section	Topic	Description of Impact from the Proposed Action	Significant Direct or Indirect Impact from the Proposed Action	Cumulative Impacts from Past and Present Actions and RFDs	Proposed Action Meaningfully Contributes to a Cumulative Impact
Vegetation	Priority Habitat	Loss and degradation of Priority Habitat	No	**Yes**	**Yes**
Vegetation	Special Status Plant Species	Loss and isolation of special status plant species	No	**Yes**	**Yes**
Wildlife and Habitat	Habitat Loss	Habitat loss and degradation	No	**Yes**	**Yes**
Wildlife and Habitat	Barriers to Movement and Fragmentation	Fencing as a barrier to movement and fragmentation of habitat due to Project footprint	No	**Yes**	**Yes**
Wildlife and Habitat	Wildlife Mortality	Mortalities from wildlife-vehicle collisions or turbine strikes	No	**Yes**	**Yes**
Wildlife and Habitat	Special Status Species	Loss of special status species from mortalities or loss or degradation of habitat	No	**Yes**	**Yes**
Historic and Cultural Resources	Archaeological Resources	Partial or complete loss of archaeological resources	**Yes**	**Yes**	**Yes**
Historic and Cultural Resources	Traditional Cultural Properties	Partial or complete loss of traditional cultural properties and resources	**Yes**	**Yes**	**Yes**
Visual Aspects, Light and Glare	Visual Aspects	Turbines would dominate the existing landscape and viewshed.	**Yes**	**Yes**	**Yes**
Visual Aspects, Light and Glare	Light and Glare	Security lighting would introduce sources of light and glare	No	**Yes**	**Yes**
Noise and Vibration	Noise	Noise from construction and Project components during operation.	No	**Yes**	**Yes**
Noise and Vibration	Vibration	Vibration during construction and decommissioning	No	No	No
Recreation	Recreation - Use	Reduction in access to available recreation lands	No	**Yes**	**Yes**
Recreation	Recreation – Public Health and Safety	Health and safety of paragliders and hang gliders	**Yes**	**Yes**	**Yes**
Transportation	Traffic Volume	Increased traffic volume from construction and decommissioning	No	**Yes**	**Yes**
Transportation	Level of Service	Decreased level of service for motorists, particularly at intersections close to Project	No	**Yes**	**Yes**
Transportation	Roadway Safety	Safety of motorists due to the presence and movement of heavy vehicles	No	**Yes**	**Yes**

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6.0 CHAPTER 6 – REFERENCES

Note: Electronic sources were consulted on the access dates provided; web addresses and web-based information are subject to change.

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7.0 CHAPTER 7 – LIST OF PREPARERS

This chapter lists the individuals who contributed to the preparation of this Environmental Impact Statement (EIS). It also includes each individual's organization affiliation and a brief description of their professional background.

7.1 Washington State Energy Facility Site Evaluation Council

Betts, Patricia – Washington State Environmental Policy Act (SEPA) Specialist

Role: Environmental Impact Statement Guidance and Review
Education: BS, Zoology
Expertise: 30 years of experience in SEPA implementation for three Washington State agencies: Department of Ecology (Ecology), Department of Natural Resources, and the Energy Facility Site Evaluation Council (EFSEC). Ms. Betts' SEPA duties included managing state agency SEPA EISs; participating in the development of, reviewing, and commenting on other SEPA and National Environmental Policy Act (NEPA) EISs; interpreting SEPA rules and advising agencies, the public, and applicants; and preparing SEPA guidance, conducting training, and developing SEPA policy.

Greene, Sean – Environmental Planner

Role: Environmental Impact Statement Guidance and Review
Education: MS, Environmental Studies; BA, History; BA, Political Science
Expertise: Over 10 years of experience in the environmental field, including time spent performing environmental and listed species assessments, technical assistance, environmental planning, permitting, and regulatory compliance. Experience coordinating complex interagency project reviews in a variety of regulatory frameworks, including NEPA and Clean Water Act assessments of large transportation and energy facility projects.

Hafkemeyer, Amí – Director of Siting and Compliance

Role: Contract Manager & Environmental Impact Statement Review
Education: BS, Ecology and Evolutionary Biology
Expertise: Over 14 years of experience working in environmental compliance, having worked as an environmental quality program manager for industry prior to joining the EFSEC staff. She has experience overseeing Clean Water Act and Oil and Petroleum Act compliance programs. In her role with EFSEC, she oversees technical staff in their implementation of SEPA reviews and permit application reviews to process applications for site certification.

Moon, Amy – Energy Facility Site Specialist Lead

Role: Project Manager & Environmental Impact Statement Review
Education: MS, Biology; BS, Environmental Science.
Expertise: Over 17 years as an environmental consultant lead biologist. Duties included environmental surveys, regulatory compliance, permitting, and Program Manager for the wetland and stormwater program. Ms. Moon routinely conducted NEPA analysis and EIS preparation, wetland delineation/permitting/restoration, biological stream surveys, vegetation surveys, sediment and erosion control design and oversight, and Environmental Site Assessments (Phase I & II). Ms. Moon served for six years as the Washington State Department of Ecology's Construction Stormwater General Permit (CSWGP) Writer and as the state lead for the Certified Erosion and Sediment Control Lead (CESCL) program. As an Energy Facility

Site Specialist, Ms. Moon is responsible for regulatory compliance for Washington's nuclear power plant, the Columbia Generating Station as well as SEPA environmental reviews and permit application reviews to process site certification applications.

7.2 State Agencies

Environmental Justice Council
- Rowena Pineda, Environmental Justice Advisor – Technical Reviewer

Office of the Attorney General
- Jonathon Thompson, Assistant Attorney General – Technical Reviewer

Washington Department of Fish and Wildlife (WDFW)
- Jason Fidorra, Fish & Wildlife Biologist – Technical Reviewer
- Michael Ritter, Wind Mitigation Biologist – Technical Reviewer

Washington State Department of Agriculture (WSDA)
- Kelly McLain, Policy Advisor to the Director – Technical Reviewer

Washington State Department of Archaeology and Historic Preservation (DAHP)
- Allyson Brooks, State Historic Preservation Officer / Director – Technical Reviewer
- Sydney Hanson, Local Government Archaeologist – Technical Reviewer
- Dennis Wardlaw, Transportation Archaeologist – Technical Reviewer
- David Witt, Assistant State Archaeologist – Technical Reviewer
- Lance Wollwage, State Archaeologist – Technical Reviewer

Washington State Department of Ecology (Ecology)
- Courtney Cecale, Environmental Justice Senior Policy Advisor – Technical Reviewer
- Karl Rains, Regional Planner – Technical Reviewer
- Lloyd Stevens Jr., Water Quality Program – Technical Reviewer
- Lori White, Shorelands and Environmental Assistance Program – Technical Reviewer
- Lynnette Haller, Air Quality Program – Technical Reviewer
- Millie Piazza, Program Manager Office of Equity & Environmental Justice – Technical Guidance

Washington State Department of Natural Resources (DNR)
- Chad Unland, Natural Resource Specialist – Technical Reviewer
- Nate Morse, Natural Resource Scientist – Technical Reviewer
- Sara Palmer, State Lands Archaeologist – Technical Reviewer
- Walter Fertig, Botanist – Technical Reviewer

Washington State Department of Transportation (WSDOT)
- Jacob Prilucik, Development Services – Technical Reviewer
- Paul Gonseth, Development Services – Technical Reviewer

Washington Utilities and Transportation Commission (UTC)
- Betty Young, Rail Safety Program – Technical Reviewer
- Vicki Elliott, Transportation Specialist – Technical Reviewer

7.3 Tribes or Tribal Groups

Tribal staff named below provided technical support to EFSEC for the EIS. The input provided does not constitute government-to-government consultation, nor does it indicate the Tribe's position on the proposal.

Confederated Tribes Of The Yakama Nation

Jessica Lally, Archaeologist – Technical Reviewer
Kyrsten Wolterstorff, Rangeland Biologist – Technical Reviewer
Mark Neutzman, Wildlife Biologist – Technical Reviewer

7.4 WSP

EFSEC was supported by WSP in preparing the EIS. WSP's team included project management, a range of resource specialists, technical writers, and geographic information system (GIS) analysts.

Akkinepally, Vamshi – Transportation Engineer

Role: Transportation Contributing Reviewer
Education: MENG, Civil and Environmental Engineer
Expertise: 20 years' experience in transportation systems analysis, transportation planning, travel demand modeling, traffic engineering, traffic operations, and safety.

Auten, Marc – Lead Consultant, Environmental Planning

Role: Senior Technical Review for SEPA Compliance
Public Health and Safety Contributing Author
Education: BS, Environmental Science (Freshwater Ecology)
Expertise: 19 years of experience in environmental regulatory consulting and project development. Expertise in federal, state, and local permitting, including National Environmental Policy Act (NEPA) and Washington State Environmental Policy Act (SEPA).

Cadillo, Jimena – Environmental Consultant

Role: EIS Technical Lead
Education: MS, Environmental Engineering; BS, Industrial Engineering
Expertise: Over 10 years' experience in management and administration of environmental projects and proposals related to the infrastructure, energy, and mining sectors. Supported US Government Sector activities like business development initiatives, strategic client development and financial planning. Also experienced in Project Controls functions such as cost controls, scheduling, forecasting, and progress and performance analysis.

Cook, Amy – Editor

Role: Technical Editor
Education: Ph.D., English Literature, BA, Linguistics
Expertise: 20-year background in technical and academic writing and editing spans academic book manuscripts, scientific journal articles, and a wide variety of research reports and plans in the environmental sciences. She has experience developing reports associated with environmental permitting for a variety of energy projects, as well as hazardous waste site investigations, remedial action planning documents, and emergency management and response operations for both private-sector and government clients.

Gamble, Don – Environmental Lead Consultant

Role: Water Resources, Vegetation, and Wildlife and Habitat Technical Reviewer
Education: Master of Natural Resource Management; BSc, Physical and Resources Geography
Expertise: Over 30 years of project management experience, with a specialization in environmental impact assessments (EIAs), regulatory review processes, environmental permit applications, and mitigation and environmental management plans for hydroelectric, oil and gas, mining, transportation, and municipal infrastructure projects.

Harmening, Sierra – Assistant Vice President, Environmental Planner

Role: SEPA Compliance and Consistency Reviewer
Recreational Technical Author
Transportation Technical Author
Earth Resources Contributing Author
Education: MS, Environmental Law and Policy; BS, Management in Technology
Expertise: Over 15 years of lands permitting, environmental consulting, and mine site management experience. Her experience includes the management and preparation of documents for permit renewals, closure planning, closure cost estimation, National Environmental Policy Act (NEPA) analysis, and compliance monitoring plans.

Hill, Sophie – Engineering Geologist

Role: Earth Resources Contributing Author
Education: Ph.D., Engineering Geology (Rock Mechanics); MESci, Geology
Expertise: Three years' experience with a background in rock mechanics, with an emphasis in experimental rock deformation.

Hindley, Gabrielle – Biologist

Role: Vegetation and Water Resources Technical Author
Education: MSc Ecological Restoration; BS, Biology
Expertise: Five years of project experience in planning and executing field programs, Terrestrial Ecosystem Mapping, research, ecological restoration, and vegetation monitoring. She also has experience conducting wildlife surveys, environmental monitoring, and designing mitigation.

Hull, Alan – Senior Vice President

Role: Earth Resources Technical Reviewer
Education: Ph.D., Geological Sciences; MSc, Geology; BSc, Geology
Expertise: Over 40 years of project experience focusing on earthquake hazard assessment and incorporating seismically active faults into engineering analysis and design.

Kristen, Mary – GIS Analyst

Role: GIS Analyst
Education: MA, Geomatics for Environmental Management; BA, Geography
Expertise: Four years of experience in GIS analysis.

Miller, Gage – Senior Environmental Scientist

Role: Noise and Vibration Technical Author

Education: BS, Environmental Science

Expertise: 23 years of noise-related experience, including noise modeling, sound propagation calculations, sound level field measurement, assessments, impact analysis, mitigation analysis, and providing expert testimony. He has experience in performing noise impact assessments in support of permitting activities at the state level and EIAs in support of large domestic and international projects.

Moss, Kate – Principal Biologist

Role: Wildlife and Habitat Technical Author

Education: BSs, Biology

Expertise: 17 years of experience designing, managing, and conducting bio-inventories, biodiversity studies, invasive species studies, wildlife salvages, Species at Risk surveys, impact assessments, and habitat compensation/ mitigation design. She has been involved in conducting baseline surveys for amphibians, birds, terrestrial gastropods and mammals, annual population monitoring, and relative abundance analysis.

Muschal, Marlis – Archaeologist

Role: Historic and Cultural Resources Technical Author

Education: MA, Anthropology; BA, Anthropology and History

Expertise: A Registered Professional Archaeologist with 13 years' experience conducting fieldwork and/or Section 106 of the National Historic Preservation Act compliance across the United States. She has contributed to the National Register of Historic Places (NRHP) evaluation of a variety of precontact and historic archaeological sites. In the field, she has led field crews and is experienced in archaeological survey, excavation, and monitoring. She also previously worked for the Confederated Tribes of the Colville Reservation, History/Archaeology Program, as a senior archaeological technician.

Nazar Nia, Naghmeh – Environmental Planner

Role: Socioeconomics Contributing Author

Education: MSc, Geography, Urban, and Environmental Studies; BA, Architecture

Expertise: 9 years of experience in designing and implementing urban and environmental planning and assessment projects. Skilled in social, land use and quality research, data collection, impact analysis and management planning for large and small projects in mining, oil and gas, power, and sustainable energy projects. She has supported the preparation of land use, marine use, visual quality and stakeholder engagement, and indigenous rights and interest chapters of Environmental Assessment Applications.

Paris, Jeremy – Assistant Vice President, Environmental Planner

Role: Project Manager
SEPA Compliance and Consistency Reviewer
Energy and Natural Resources Technical Author
Land and Shoreline Use Technical Author
Public Services and Utilities Technical Author
Socioeconomic Technical Author

Education: MS, Biological Sciences; BS, Biological Sciences

Expertise: 18 years of professional consulting experience leading projects in support of the energy, maritime, transportation, and government sectors. He has prepared high-level NEPA documents, Endangered Species Act Biological Assessments, International Finance Corporation Performance Standards Compliant Environment and Social Impact Assessments, California Environmental Quality Act compliant documents, and Master Plans for water quality improvement programs.

Stein, David – Vice President, Environmental Planning and Permitting

Role: Air Quality Technical Author

Education: MS, Environmental Engineering; BS, Environmental Engineering; BS, Biological Sciences

Expertise: Over 40 years of environmental management and permitting experience working with major gas and electric utilities, independent power plant developers (both renewable and fossil), major oil and petrochemical conglomerates, refiners, chemical plants, mining facilities, and various other industries. An air quality specialist with experience with air quality districts providing regulatory and rulemaking strategy and advocacy, technical support, permit procurement and compliance support, and expert witness testimony.

Stevens, Kathryn – Project Coordinator

Role: Deputy Project Manager

Education: BA, Communications

Expertise: Over 20 years of administrative and environmental experience on large-scale projects, reports, quality control, comment responses and tracking, outreach coordination, administrative records, and research.

Umlauf, Kate – Architectural Historian

Role: Historic and Cultural Resources Contributing Author

Education: MA, Heritage Management; BA, Anthropology

Expertise: 6 years' experience conducting architectural surveys, integrity research, National Register of Historic Places (NRHP) evaluations and nominations, and historical research and context development in fulfillment of Section 106 and 110 of the National Historic Preservation Act (NHPA) of 1966 and the National Environmental Policy Act (NEPA) of 1970. Also experienced in transportation research, historic property documentation and historic structure reports, and historic cemetery restoration.

7.5 SWCA Environmental Consultants

Johnson, Craig – Senior Environmental Project Manager

Role: Visual Aspects Technical Reviewer
Education: BLA, Landscape Architecture
Expertise: Over 25 years' experience on a variety of projects, including wind, solar, and battery storage facilities, large-scale transmission lines and pipelines, and transportation assessments. He has comprehensive knowledge of the visual resource methodologies and techniques employed by the Bureau of Land Management (BLM), U.S. Forest Service (USFS), and Federal Highway Administration.

Rauhe, Kevin – Environmental Planner

Role: Visual Aspects Technical Author
Education: BLA, Landscape Architecture
Expertise: Over 10 years' experience with a background in landscape architecture specializing in visual resources, National Scenic and Historic Trails, land uses, recreation, wilderness, and specially designated federal lands. He has developed interdisciplinary methodologies to analyze National Scenic and Historic Trails and visual resources for linear projects through coordination with BLM, USFS, National Park Service, and state and local governmental staff.

7.6 Tetra Tech

Crookston, John – Biologist

Role: Purpose of Action Contributor
Education: MS, Ecology; BS, Biology
Expertise: Over 20 years of experience in federal, state, and local environmental permitting.

Fossum, Linnea – Senior Manager

Role: Purpose of Action Contributor
Education: MS, Environmental Engineering and Science; BA, Mathematics
Expertise: Over 25 years of experience in federal, state, and local environmental planning, permitting, environmental site investigations and remedial actions.

7.7 Authors of Supporting Technical Reports

The development of supporting technical reports was provided by Golder Associates Ltd., a member of WSP, and SWCA Environmental Consultants.

Wind Turbine Wildlife Collision Risk Assessment, Horse Heaven Wind Farm

Company: Golder Associates Ltd.
Authors: Ilya Povalyaev, RPBio; Kate Moss, RPBio; and Don Gamble, RPP, MCIP, RPBio

Horse Heaven Wind Farm Project, Final Visual Impact Assessment Report

Company: SWCA Environmental Consultants
Authors: Kevin Rauhe; Craig Johnson, PLA

8.0 CHAPTER 8 – GLOSSARY

adaptability *(4.6 Wildlife and Habitat)*	In biology, a species' ability to continue functioning after a disturbance.
adjudicative proceedings/process *(1.0 Project Background and Purpose and Need; 10.0 Comments and Responses on the Draft EIS)*	Hearings on a proposed project to allow an Applicant and other qualified interested parties to present expert witness testimony to support their concerns regarding a proposed project.
aerodynamic sound *(4.11 Noise and Vibration)*	The sound produced from air flow and interaction with a turbine tower structure and moving rotor blades (as opposed to mechanical sound).
Aircraft Detection Lighting System (ADLS) *(2.0 Proposed Action and Alternatives; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 10.0 Comments and Responses on the Draft EIS)*	A sensor-based system that monitors the airspace around a site, detecting aircraft and activating obstruction lights only when aircraft are within a specified distance.
alluvial soil *(3.4 Water Resources; 4.4 Water Resources)*	Soil deposited by surface water.
anthropogenic *(3.5 Vegetation; 3.6 Wildlife and Habitat; 3.11 Noise and Vibration; 4.5 Vegetation; 4.6 Wildlife and Habitat)*	Caused or created by humans.

anticline *(3.2 Earth Resources)*	The high part of one or more geological units that have been folded by geological forces.
Applicant *(All sections)*	In this Environmental Impact Statement, Horse Heaven Wind Farm, LLC; the entity proposing to construct the Horse Heaven Wind Farm.
Application for Site Certification (ASC) *(All sections)*	Generally, an application submitted to the Washington Energy Facility Site Evaluation Council for a Site Certification Agreement permitting the development of an energy project in Washington State; specifically used in this Environmental Impact Statement to refer to the proposed Horse Heaven Wind Farm application.
aquifer storage and recovery (ASR) *(3.7 Energy and Natural Resources)*	A water resources management technique in which water is stored in an underground aquifer for use during dry seasons.
archaeological resources *(3.9 Historic and Cultural Resources; 4.9 Historic and Cultural Resources; 10.0 Comments and Responses on the Draft EIS)*	Material remains of human activities that can provide information on the behavioral traits and environmental and cultural adaptations of a people.
architectural resources *(2.0 Proposed Action and Alternatives; 3.9 Historic and Cultural Resources; 4.9 Historic and Cultural Resources)*	Properties listed in the National Register of Historic Places or designated by a local historic preservation body, typically 50 years of age or older.
atmospheric stability *(3.3 Air Quality; 4.3 Air Quality)*	Lack of vertical air movement in the atmosphere, generally characterized according to the Pasquill-Gifford scheme, which ranges from Class A (most unstable) to Class G (most stable).
attainment area *(3.3 Air Quality)*	Area whose air quality complies with the National Ambient Air Quality Standards.

A-weighted sound level *(3.11 Noise and Vibration)*	Scale expressing relative loudness as perceived by the human ear, measured in A-weighted decibels (dBA).
balance of plant *(4.5 Vegetation; 4.16 Socioeconomics)*	All supporting and auxiliary parts of a power generation facility, not including the main facility.
balance of system *(4.16 Socioeconomics)*	All components of a photovoltaic energy generating system other than the photovoltaic panels.
battery energy storage system (BESS) *(All sections)*	Device that stores energy from renewable sources like solar and wind for later use.
before present (B.P.) *(3.9 Historic and Cultural Resources)*	Time prior to January 1, 1950, when radiocarbon dating can be used to estimate time since the death or burial of organic material.
CadnaA (Computer Aided Noise Abatement) *(4.11 Noise and Vibration)*	A computer program developed by DataKustik GmbH to assist in calculating noise propagation for major noise sources and projects.
carbon dioxide equivalent (CO_2e) *(4.3 Air Quality)*	A measure of the global warming potential of various greenhouse gases, expressed as the amount of carbon dioxide that would have the same global warming potential.
Cascadia Subduction Zone *(3.2 Earth Resources)*	Zone of contact between the Pacific, Gorda, Juan de Fuca, and Explorer tectonic plates that extends from northern Vancouver Island to Northern California, about 70 to 100 miles offshore and beneath the Pacific Coast of western North America.
Commenter *(10.0 Comments and Responses on the Draft EIS)*	An individual, or individual representing an organization or entity, that has submitted a comment on the Draft EIS during the public comment period.

comprehensive land use plan *(2.0 Proposed Action and Alternatives; 3.8 Land and Shoreline Use; 4.8 Land and Shoreline Use)*	A document that guides the land use decisions of a local government.
conditional use permit *(1.0 Project Background and Purpose and Need; 3.8 Land and Shoreline Use; 5.0 Cumulative Impacts)*	A permit that allows a use of land that does not conform to the standard zoning regulations for a given area.
Conservation Reserve Program *(2.0 Proposed Action and Alternatives; 3.5 Vegetation; 3.6 Wildlife and Habitat; 3.8 Land and Shoreline Use; 4.6 Wildlife and Habitat)*	A program administered by the Farm Service Agency, in which farmers receive a yearly payment in exchange for removing environmentally sensitive land from agricultural production.
considerable/considerably *(4.2 Earth Resources; 4.9 Cultural; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 5.0 Cumulative Impacts)*	(In relation to impacts) In a distinctive manner or a noticeably measurable way.
corona, or corona effect *(4.11 Noise and Vibration)*	Ionization of the air that occurs at the surface of electrical conductors and power lines under some conditions, leading to loss of energy, audible noise, and release of ozone gas.
County Well Solar Field *(2.0 Proposed Action and Alternatives; 3.4 Water Resources; 3.5 Vegetation; 4.4 Water Resources; 4.5 Vegetation)*	One of the Horse Heaven Wind Farm’s three proposed Solar Siting Areas.

Critical Aquifer Recharge Area (CARA) *(3.4 Water Resources; 4.4 Water Resources)*	An area that acts to recharge aquifers used for potable water, as defined by Washington Administrative Code 365-190-100.
daytime hours *(2.0 Proposed Action and Alternatives; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 10.0 Comments and Responses on the Draft EIS)*	The hours between 7 a.m. and 10 p.m.
diatomaceous earth *(3.2 Earth Resources)*	Soft sedimentary rock made of fossilized diatoms that once lived in bodies of water.
East Solar Field *(2.0 Proposed Action and Alternatives; 3.4 Water Resources; 3.5 Vegetation; 3.6 Wildlife and Habitat; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat)*	One of the Horse Heaven Wind Farm's three proposed Solar Siting Areas.
edge effect *(4.5 Vegetation; 4.6 Wildlife and Habitat)*	A change in ecological conditions due to the meeting of two or more different habitat types, which causes the habitats to impact one another.
emissions factor *(4.3 Air Quality)*	The amount of pollutants produced in relation to the amount of raw materials processed, for a given industrial activity.
Energy Facility Siting Evaluation Council (EFSEC) *(All sections)*	Washington State agency that permits and coordinates the siting process for large energy projects in the state.

Environmental Justice *(3.16 Socioeconomics; 4.16 Socioeconomics)*	Equal protection from environmental health hazards regardless of race, color, national origin, or income, and equal access to the decision-making process regarding actions that affect the environment where people live, work, and learn.
ephemeral stream *(3.4 Water Resources; 4.4 Water Resources)*	A stream that flows only during, or immediately following, precipitation events and for which stormwater is the main water source.
evening hours *(4.11 Noise and Vibration)*	The hours between 6 p.m. and 10 p.m.
facultative *(3.4 Water Resources)*	Species that can occur in both wetland and non-wetland ecosystems.
federally obligated *(3.10 Visual)*	Describes an entity, such as an airport, that has accepted federal funds to buy land or develop or improve the facility.
ferruginous hawk nest *(3.6 Wildlife and Habitat; 4.6 Wildlife and Habitat)*	A nest constructed or occupied by a ferruginous hawk, regardless of activity status. Occurrences of ferruginous hawk nests may be reported through Priority Habitats and Species data or field studies.
forb *(3.4 Water Resources; 3.5 Vegetation; 3.6 Wildlife and Habitat; 4.2 Earth Resources; 4.4 Water Resources; 4.5 Vegetation)*	A broad-leaved, non-woody flowering plant that is not a grass.
fugitive air emissions *(3.3 Air Quality)*	Gas or vapor emissions that do not pass through a chimney, smokestack, or similar facility.
glaciolacustrine *(3.2 Earth Resources)*	Having to do with a lake formed by the melting of glacier ice.

glare *(2.0 Proposed Action and Alternatives; 3.10 Visual Aspects, Light and Glare; 4.8 Land and Shoreline Use; 4.10 Visual Aspects, Light and Glare; 4.12 Recreation; 4.14 Transportation; 4.16 Socioeconomics; 5.0 Cumulative Impacts; 10.0 Comments and Responses on the Draft EIS)*	Light reflected off of a stationary object.
glint *3.10 Visual Aspects; Light and Glare; 4.10 Visual Aspects; Light and Glare)*	A momentary flash of bright light, often caused by a reflection off a moving source.
global warming potential (GWP) *(4.3 Air Quality)*	A measure of how much heat a greenhouse gas will trap in the atmosphere over a specified period, compared to carbon dioxide.
greenhouse gas (GHG) *(3.3 Air Quality; 4.3 Air Quality; 10.0 Comments and Responses on the Draft EIS)*	A gas that traps heat in the atmosphere, which is then reradiated back toward the earth's surface, warming the lower atmosphere and the earth's surface.
Growth Management Act (GMA) *(2.0 Proposed Action and Alternatives; 3.2 Earth Resources; 3.8 Land and Shoreline Use; 3.14 Transportation; 3.15 Public Services and Utilities; 3.16 Socioeconomics; 4.4 Water Resources; 4.8 Land and Shoreline Use; 4.11 Noise and Vibration; 4.12 Recreation; 4.15 Public Services and Utilities; 5.0 Cumulative Impacts; 10.0 Comments and Responses on the Draft EIS)*	A Washington State law that requires state and local governments to manage growth by identifying and protecting critical areas and natural resource lands, designating urban growth areas, and preparing and implementing comprehensive land use plans (Revised Code of Washington Chapter 36.70A).
guild *(4.6 Wildlife and Habitat)*	A group of species that exploits the same kinds of resources in comparable ways.

habitat concentration area (HCA) *(3.6 Wildlife and Habitat; 4.6 Wildlife and Habitat)*	An area of habitat that is expected or known to be important for specific species, based on survey data or modeling.
habitat fragmentation *(3.5 Vegetation; 3.6 Wildlife and Habitat; 4.5 Vegetation; 4.6 Wildlife and Habitat; 5.0 Cumulative Impacts)*	The process of segregating portions of habitat or ecosystems with anthropogenic features, which increases the potential for additional vectors to degrade habitat. For example, the construction of a road through a continuous patch of habitat could increase the potential for the introduction and spread of invasive plants that can continually degrade habitat beyond the initial loss of habitat.
hemispherical spreading *(4.11 Noise and Vibration)*	The decrease in level when a sound wave propagates away from a source uniformly in all directions aboveground.
Horse Heaven Wind Farm (Project, or Proposed Action) *(All sections)*	A proposed renewable energy generation facility that would be located in the Horse Heaven Hills area of Benton County, Washington; the facility analyzed in this Environmental Impact Statement.
Horse Heaven Wind Farm, LLC *(All sections)*	The entity applying for Site Certification for the proposed Horse Heaven Wind Farm.
illuminance *(3.10 Visual Aspects, Light and Glare; 4.10 Visual Aspects, Light and Glare)*	Measurement of the amount of light falling onto and spreading over a given surface area.
intermittent stream *(3.4 Water Resources; 4.4 Water Resources; 4.6 Wildlife and Habitat; 5.0 Cumulative Impacts)*	A stream that contains water for only a portion of the year—typically, seasonally during winter and spring, when the channel is below the water table or when snow melt provides sustained flow.
inverse square law *(4.11 Noise and Vibration)*	A property in physics whereby an energy such as sound pressure (noise), varies with the distance from the source inversely as the square of the distance.

key observation point (KOP) *(3.10 Visual Aspects, Light and Glare; (4.10 Visual Aspects, Light and Glare; 4.12 Recreation; 10.0 Comments and Responses on the Draft EIS)*	A typical or sensitive viewing location that represents a critical place from which the public would view a project; used to assess visual impacts.
lahar *(3.2 Earth Resources)*	A mudflow formed when volcanic ash and other debris mix with a water source that flows rapidly down a valley.
lake effect *(4.6 Wildlife and Habitat)*	A phenomenon whereby some birds may misperceive solar panels as waterbodies and attempt to land on them, potentially resulting in injury or death.
landscape character *(3.10 Visual Aspects, Light and Glare; 4.2 Earth Resources; 4.10 Visual Aspects, Light and Glare)*	The overall visual appearance of a given landscape, including both natural features and human-created modifications.
landscape character area *(3.10 Visual Aspects, Light and Glare)*	Portions of a larger landscape that share harmonizing features that result in and exhibit a particular visual character.
Ldn *(3.11 Noise and Vibration)*	24-hour average sound pressure level, calculated with a 10 A-weighted decibel “penalty” added to nighttime hours (10 p.m. to 7 a.m.) to evaluate potential human response in residential land uses, where humans are more sensitive to nighttime noise impacts.
Lease Boundary *(Chapters 2 through 5)*	The area where the Horse Heaven Wind Farm would be located, comprising approximately 72,428 acres on Horse Heaven Hills in Benton County, Washington.
Leq *(3.11 Noise and Vibration)*	Sound pressure level averaged for a given sampling period.

level of service (LOS) *(3.14 Transportation; 4.14 Transportation; 4.15 Public Services and Utilities)*	A qualitative measure of the experience of motorists using transportation infrastructure, based on factors such as congestion, delays, and traffic density; categorized into six levels, with Level A being the best experience and F being the worst.
light trespass *(3.10 Visual Aspects, Light and Glare; 4.6 Wildlife Habitat; 4.10 Visual Aspects, Light and Glare; 10.0 Comments and Responses on the Draft EIS)*	Light falling where it is not intended or needed.
Lmax *(3.11 Noise and Vibration; 4.11 Noise and Vibration)*	Maximum sound pressure level during a given sampling period.
Lmin *(3.11 Noise and Vibration)*	Minimum sound pressure level during a given sampling period.
loess, loessial *(3.2 Earth Resources; 4.2 Earth Resources)*	Loosely compacted sandy silt deposited by wind.
mechanical sound *(4.11 Noise and Vibration)*	Relating to a wind turbine, the sound that is generated by the gearbox, generator, and cooling fan (as opposed to aerodynamic sound).

Micrositing Corridor *(2.0 Proposed Action and Alternatives; 3.4 Water Resources; 3.5 Vegetation; 3.6 Wildlife and Habitat; 3.8 Land and Shoreline Use; 3.9 Historic and Cultural Resources; 4.2 Earth Resources; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.13 Public Health and Safety; 4.14 Transportation; 5.0 Cumulative Impacts; 10.0 Comments and Responses on the Draft EIS)*	Component of the Horse Heaven Wind Farm; the area where the turbine towers, access roads, crane paths, laydown areas, operations and maintenance facilities, meteorological towers, collector lines, and transmission lines would be located.
mill, millage *(3.16 Socioeconomics; 4.16 Socioeconomics)*	For taxation purposes, one mill is one dollar per $1,000 dollars of assessed value.
mitigation measure *(1.0 Project Background and Purpose and Need; 2.0 Proposed Action and Alternatives; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics)*	An action intended to eliminate, reduce, control, or offset adverse effects of a project.
moment magnitude (expressed as M_W or M) *(3.2 Earth Resources)*	Scale that measures the energy released at an earthquake source.

motive power *(3.14 Transportation)*	The locomotive engines of a railroad system collectively.
nacelle *(2.0 Proposed Action and Alternatives; 3.10 Visual Aspects, Light and Glare; 3.14 Transportation; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.10 Visual Aspects; Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation)*	The housing for the generator at the top of a wind turbine that is connected to the rotor.
nameplate generating capacity *(2.0 Proposed Action and Alternatives; 3.7 Energy and Natural Resources; 4.16 Socioeconomics; 5.0 Cumulative Impacts)*	The amount of electricity a generator can produce when running at its maximum designed output.
nest *(2.0 Proposed Action and Alternatives; 3.5 Vegetation; 3.6 Wildlife and Habitat; 5.0 Cumulative Impacts)*	A structure built by a bird for the purpose of egg laying and rearing young. An active nest is a nest that is occupied by a bird, egg, or chick.
Natural Heritage Program (NHP) *(3.4 Water Resources; 3.5 Vegetation; 3.6 Wildlife and Habitat; 4.5 Vegetation; 4.6 Wildlife and Habitat)*	Washington’s primary source of information about rare and endangered plant species and threatened ecosystems.
nighttime hours *(3.11 Noise and Vibration; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration)*	The hours between 10 p.m. and 7 a.m.

nighttime operations *(4.11 Noise and Vibration; 10.0 Comments and Responses on the Draft EIS)*	Work conducted between the hours of 10 p.m. and 7 a.m.
No Action Alternative *(2.0 Proposed Action and Alternatives; 3.10 Visual Aspects, Light and Glare; 3.12 Recreation; 3.14 Transportation; 3.16 Socioeconomics; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics)*	A scenario under which a proposed project would not be built, used as a baseline against which to compare the impacts of building the project; in this Environmental Impact Statement, the No Action Alternative refers to the scenario of not building the Horse Heaven Wind Farm.
noise *(1.0 Project Background and Purpose and Need; 2.0 Proposed Action and Alternatives; 3.10 Visual Aspects, Light and Glare; 3.11 Noise and Vibration; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.15 Public Services and Utilities; 4.16 Socioeconomics; 5.0 Cumulative Impacts; 10.0 Comments and Responses on the Draft EIS)*	A sound that is “unwanted”—i.e., this term is based on human perception.

non-attainment *(3.3 Air Quality)*	The failure of a specified area to meet the National Ambient Air Quality Standards; areas that fail to meet this standard are designated “non-attainment” areas.
noxious weed *(2.0 Proposed Action and Alternatives; 3.5 Vegetation; 4.2 Earth Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.10 Visual Aspects, Light and Glare)*	A weed that is harmful to agricultural or horticultural crops, natural habitats or ecosystems, or humans or livestock; in this Environmental Impact Statement, a plant legally designated as such in Washington State and Benton County.
ordinary high-water level (OHWL) *(2.0 Proposed Action and Alternatives; 3.4, Water Resources; 3.8 Land and Shoreline Use; 4.4 Water Resources)*	In a stream, river, or other waterbody, the elevation where the highest water level has been maintained for sufficient time such that physical evidence such as a change in vegetation, soil characteristics, or the presence of litter or debris is evident.
peak ground acceleration (PGA) *(3.2 Earth Resources)*	Largest acceleration experienced by the ground at a given location during earthquake shaking.
point source (of pollution) *(3.3 Air Quality; 4.3 Air Quality; 4.5 Vegetation; 4.11 Noise and Vibration)*	A single, stationary source of pollution.
Post-Adjudication Applicant Commitments *(2.0 Proposed Action and Alternatives; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics)*	The Applicant’s additional commitments were prepared after publication of the Draft ASC and with input from regulatory agencies, changes to applicable regulations, testimony from adjudicative hearings, and information received from the Bonneville Power Administration (BPA). The additional Applicant commitments were identified and finalized in the Applicant’s Final ASC, as per WAC 463-60-116.

Priority Habitat *(1.0 Project Background and Purpose and Need; 3.5 Vegetation; 3.6 Wildlife and Habitat; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 5.0 Cumulative Impacts; 10.0 Comments and Responses on the Draft EIS)*	Habitat that is given priority for conservation and management by the Washington Department of Fish and Wildlife; may refer to a unique vegetation association (e.g., shrub-steppe) or a particular habitat feature (e.g., cliffs).
priority species *(2.0 Proposed Action and Alternatives; 3.6 Wildlife and Habitat; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat)*	In the State of Washington, species that are either state-listed as endangered, threatened, sensitive, or candidate species, or considered vulnerable.
Proposed Action *(All sections)*	The proposed Horse Heaven Wind Farm analyzed in this Environmental Impact Statement.
pyroclastic flow *(3.2 Earth Resources)*	Chaotic mixture of volcanic ash, hot cases, and rock debris, usually generated from the collapse of a volcanic eruption column.
resilience *(4.5 Vegetation; 4.6 Wildlife and Habitat)*	In biology, the ability of a species or ecosystem to recover from disturbance.

Revised Code of Washington (RCW) *(1.0 Project Background and Purpose and Need; 3.2 Earth Resources; 3.3 Air Quality; 3.7 Energy and Natural Resources; 3.8 Land and Shoreline Use; 3.9 Historic and Cultural Resources; 3.12 Recreation; 3.14 Transportation; 3.15 Public Services and Utilities; 3.16 Socioeconomics; 4.4 Water Resources; 4.5 Vegetation; 4.8 Land and Shoreline Use; Historic and Cultural Resources; 4.12 Recreation; 4.16 Socioeconomics; 10 Comments and Responses on the Draft EIS)*	A compilation of all permanent state laws passed by the Washington State Legislature that are currently in effect.
sedentism *(3.9 Historic and Cultural Resources)*	Living in one place for an extended time.
Sellards Solar Field *(2.0 Proposed Action and Alternatives; 3.4 Water Resources; 3.5 Vegetation; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.12 Recreation)*	One of the Horse Heaven Wind Farm's three proposed Solar Siting Areas.

sensitive receptor *(3.10 Visual Aspects, Light and Glare; 3.11 Noise and Vibration; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics; 10.0 Comments and Responses on the Draft EIS)*	Locations where particularly vulnerable persons reside for extended periods, including day care centers, schools, nursing homes, hospitals, and other similar facilities.
shadow flicker *(3.10 Visual Aspects, Light and Glare; 4.10 Visual Aspects, Light and Glare; 10.0 Comments and Response on the Draft EIS)*	Moving shadow caused by a wind turbine's rotating blades, sometimes causing an impact on visual resources in the vicinity.
sherd *(3.9 Historic and Cultural Resources)*	A broken piece of ceramic material, common on archaeological sites.
Shoreline Management Act (SMA) *(1.0 Project Background and Purpose and Need; 3.8 Land and Shoreline Use; 4.12 Recreation)*	A Washington State law whose purpose is to manage and protect shorelines in the state by regulating development in shoreline areas (Revised Code of Washington Chapter 90.58).
Shoreline Master Program (SMP) *(3.8 Land and Shoreline Use; 4.4 Water Resources)*	Local land use policies and regulations that guide the use of shorelines in Washington State, required under the state Shoreline Management Act.

seiche *(3.2 Earth Resources; 4.2 Earth Resources)*	Oscillating water waves that can occur in any enclosed or partially enclosed waterbodies such as lakes and rivers; caused by earthquake shaking, volcanic activity, landslides, or extreme wind or weather events.
(soil) liquefaction *(2.0 Proposed Action and Alternatives; 3.2 Earth Resources; 4.2 Earth Resources)*	Temporary change of saturated sandy soil from a solid state to a state with properties more like a liquid than a soil; can occur during an earthquake.
solar array *(1.0 Project Background and Purpose and Need; 2.0 Proposed Action and Alternatives; 3.0 Visual Aspects, Light and Glare; 3.13 Public Health and Safety; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics; 5.0 Cumulative Impacts)*	Collection of solar panels that generate electricity as a system.

Solar Siting Areas *(2.0 Proposed Action and Alternatives; 3.4 Water Resources; 3.5 Vegetation; 3.6 Wildlife and Habitat; 3.8 Land And Shoreline Use; 3.9 Historic and Cultural Resources; 4.2 Earth Resources; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.9 Historic and Cultural Resources; Visual Aspects, Light and Glare; 5.0 Cumulative Impacts)*	The areas where the solar facilities for the Horse Heaven Wind Farm would be placed.
sound pressure level *(3.11 Noise and Vibration; 4.6 Wildlife and Habitat; 4.11 Noise and Vibration)*	Measure of sound wave pressure, expressed in decibels.
stability rose *(3.3 Air Quality)*	A type of graphic used by meteorologists to show typical wind direction and the atmospheric stability associated with each wind direction in a given area over a given time.

State Environmental Policy Act (SEPA) *(1.0 Project Background and Purpose and Need; 3.8 Land and Shoreline Use; 3.9 Historic and Cultural Resources; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics; 5.0 Cumulative Impacts; 10.0 Comments and Responses on the Draft EIS)*	Washington State's most fundamental environmental law, enacted in 1971, whose purpose is to ensure that state and local agencies consider environmental impacts when making decisions regarding a proposed action.
Substantive (*10.0 Comments and Responses on the Draft EIS*)	Having substance; involving matters of major or practical importance to all concerned.
syncline *(3.2 Earth Resources)*	The low part of one or more geological units that have been folded by geological forces.
traditional cultural property (TCP) *(3.9 Historic and Cultural Resources; 4.9 Historic and Cultural Resources; 10.0 Comments and Responses on the Draft EIS)*	A natural place or built property that has cultural or religious significance to an indigenous group.
tsunami *(3.2 Earth Resources; 4.2 Earth Resources)*	Long-duration (minutes) ocean wave usually generated offshore by a large earthquake, submarine or near-shore landslide, or undersea volcanic eruption that displace the seafloor.

turbine, *see* wind turbine

Turbine Option
(2.0 Proposed Action and Alternatives; 3.8 Land and Shoreline Use; 3.10 Visual Aspects, Light and Glare; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics; 10.0 Comments and Responses on the Draft EIS)

For the proposed Horse Heaven Wind Farm, one of two possible wind turbine layouts; Turbine Option 1 would include a larger number of smaller turbines, and Turbine Option 2 would include a smaller number of larger turbines.

Urban Growth Area (UGA)
(2.0 Proposed Action and Alternatives; 3.8 Land and Shoreline Use; 4.15 Public Services and Utilities)

Generally, a designated area (such as a city) where urban growth and development are encouraged, and outside of which urban growth and development are discouraged or prohibited; under the Washington State Growth Management Act, counties in Washington State are required to designate UGAs in their comprehensive plans.

Vegetation Area of Analysis
(3.5 Vegetation; 4.5 Vegetation)

The area of land analyzed for impacts on vegetation expected to result from the Horse Heaven Wind Farm; includes the Lease Boundary plus an additional 2-mile buffer.

Washington Administrative Code (WAC) *(1.0 Project Background and Purpose and Need; 2.0 Proposed Action and Alternatives; 3.2 Earth Resources; 3.3 Air Quality; 3.4 Water Resources; 3.7 Energy and Natural Resources; 3.8 Land and Shoreline Use; 3.10 Visual Aspects, Light and Glare; 3.11 Noise and Vibration; 3.12 Recreation; 3.13 Public Health and Safety; 3.14 Transportation; 3.15 Public Services and Utilities; 4.2 Earth Resources; 4.3 Air Quality; 4.4 Water Resources; 4.5 Vegetation; 4.6 Wildlife and Habitat; 4.7 Energy and Natural Resources; 4.8 Land and Shoreline Use; 4.9 Historic and Cultural Resources; 4.10 Visual Aspects, Light and Glare; 4.11 Noise and Vibration; 4.12 Recreation; 4.13 Public Health and Safety; 4.14 Transportation; 4.15 Public Services and Utilities; 4.16 Socioeconomics; 10.0 Comments and Responses on the Draft EIS)*	The administrative rules and regulations of executive branch agencies in the State of Washington.
Water Resource Inventory Area (WRIA) *(3.4 Water Resources)*	A watershed in the State of Washington, formalized in state law and managed by the Washington State Department of Ecology; there are 62 WRIAs in Washington.
wind farm *(All sections)*	A collection of wind turbines in the same location that act together as a single power station.
wind rose *(3.3 Air Quality; 4.3 Air Quality)*	A type of graphic used by meteorologists to show typical wind speeds and direction in a given area over a given time.
wind shear *(4.11 Noise and Vibration)*	Change in wind direction or speed over a relatively short distance.

wind turbine, *also* turbine	A machine consisting of a tall tower with large blades that rotate when pushed by wind and turn wind energy into electricity.
working hours *(2.0 Proposed Action and Alternatives; 4.11 Noise and Vibration)*	The hours between 7 a.m. and 6 p.m.

9.0 CHAPTER 9 – DISTRIBUTION

Notice of the Final Environmental Impact Statement (EIS) was sent to anyone who commented on the Draft EIS and provided contact information.

9.1 Federal Agencies

Bonneville Power Administration

Bureau of Land Management – Wenatchee Field Office

Department of Defense

National Park Service

U.S. Environmental Protection Agency, Region 10

U.S. Fish and Wildlife Services, Washington Office

Yakima Training Center

9.2 Tribal Governments

Coeur d'Alene Tribe

Columbia River Inter-Tribal Fish Commission

Confederated Tribes of the Chehalis Reservation

Confederated Tribes of the Colville Reservation

Confederated Tribes of the Umatilla Indian Reservation

Confederated Tribes of Warm Springs Reservation of Oregon

Confederated Tribes and Bands of the Yakama Nation

Cowlitz Indian Tribe

Hoh Indian Tribe

Kalispel Tribe

Lower Elwha Klallam Tribe

Lummi Nation

Makah Tribe

Muckleshoot Indian Tribe

Nez Perce Tribe

Nooksack Tribe

Northwest Indian Fisheries Commission

Port Gamble S'Klallam Tribe

Puyallup Tribe

Quileute Nation

Samish Indian Nation

Sauk-Suiattle Tribe

Shoalwater Bay Indian Tribe

Skokomish Indian Tribe

Snoqualmie Indian Tribe

Stillaguamish Tribe of Indians

Suquamish Tribe

Swinomish Indian Tribal Community

Tulalip Tribes

Upper Skagit Tribe

Wanapum Tribe

9.3 State Agencies

Washington State Department of Agriculture

Washington State Department of Archaeology and Historic Preservation

Washington State Department of Commerce

Washington State Department of Ecology

Washington State Department of Fish and Wildlife

Washington State Department of Health

Washington State Department of Natural Resources, SEPA Center

Washington State Department of Transportation, SEPA Reviews

Washington State Office of the Attorney General

Washington State Parks and Recreation Commission

Washington State Utilities & Transportation Commission

9.4 Regional Government

Badger Mountain Irrigation District

Benton Clean Air Agency

Benton County Board of Commissioners

Benton County Conservation District

Benton County Noxious Weed Control Board

Benton County Parks Service

Benton County Public Utility District (PUD)

Benton County Public Works

Benton Irrigation District

Benton Rural Electric Association

Douglas County

Kennewick Irrigation District

Spokane County

9.5 Local Government

City of East Wenatchee

City of Kennewick

City of Pasco

City of Richland

City of Walla Walla

City of Wenatchee

9.6 Libraries and Education Institutions

Mid-Columbia Libraries - Benton City Branch, Benton City, WA

Mid-Columbia Libraries – Keewaydin Park Branch, Kennewick, WA

Mid-Columbia Libraries – Kennewick Branch, Kennewick, WA

Mid-Columbia Libraries – Pasco Branch, Pasco, WA

Mid-Columbia Libraries – Prosser Branch, Prosser, WA

Mid-Columbia Libraries – West Pasco Branch, Pasco, WA

Mid-Columbia Libraries – West Richland Branch, West Richland, WA

Richland Public Library, Richland, WA

Washington State Library, Tumwater, WA

9.7 Fire Departments/Districts

Benton County Fire Districts #1, #2, #3, #4, and #5

Kennewick Fire Department

Pasco Fire Department

Richland Township Fire Department

9.8 Other Parties

Benton County PUD

Puget Sound Partnership

Puget Sound Regional Council

Lower Columbia Basin Audubon Society

Scout Clean Energy

Sierra Club

Notification of publication to the EFSEC Horse Heaven Project Mailing List

Stoel Rives

The Nature Conservancy

TVW

South Central Department of Transportation

Washington Environmental Council

Washington Native Plant Society

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10.0 CHAPTER 10 – COMMENTS AND RESPONSES ON THE DRAFT EIS

10.1 Introduction

The Washington Energy Facility Site Evaluation Council (EFSEC) sought comments on the Draft Environmental Impact Statement (EIS) for the proposed Horse Heaven Wind Farm (Project, or Proposed Action) from members of the public, regulatory agencies, and other stakeholders. The Draft EIS was made available for review and comment to all interested parties and was posted to the publicly accessible EFSEC website: (https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa). The official comment period for the Draft EIS was 45 days: from December 19, 2022, through February 1, 2023.

This chapter describes the process by which comments were reviewed, categorized, and evaluated. It includes a set of consolidated responses that address key issues raised during the comment period. Where necessary, the Draft EIS was revised based on the comments received during the official comment period.

10.2 Public Participation

A public hearing on the Draft EIS was held virtually on February 1, 2023. The event was attended by members of the public, representatives of governmental agencies and tribes, nongovernmental organizations, private individuals, and representatives of Horse Heaven Wind Farm, LLC (the Applicant). In total, approximately 74 people provided verbal comments at the public meeting. All verbal comments[1], individual website comments, comment emails, letters, and postcards (referred to as “comment submittals”) are provided for review in the meeting transcripts. The meeting transcripts and comments are available for review on the publicly accessible EFSEC website: (https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa).

10.3 Comments Received

EFSEC accepted comments on the Draft EIS during the public commenting period in the following ways:

- Through a dedicated comment website
- Orally or in writing at the public meeting
- By email to EFSEC staff
- By mail or direct delivery to EFSEC staff

More than 2,200 comment submittals were received from individuals, agencies, and organizations. Collectively, the groups are referred to herein as the Commenters. Each comment submittal was logged upon receipt and placed in the Project’s administrative record with a unique identification number.

10.4 The Comment Response Process

EFSEC received comments on the Draft EIS that were often focused on a single issue; however, several commenters submitted comments expressing multiple concerns on a number of issues. Individual substantive comments within each submittal were identified in the comment database. A comment was characterized as substantive if it did one or more of the following:

- Questioned the accuracy of information in the Draft EIS

[1] A court reporter transcribed verbal comments presented at the public hearing on the Draft EIS.

- Questioned the adequacy of, or the methodology and assumptions used for, the environmental analysis
- Questioned Project details and/or the regulatory process
- Suggested new information relevant to the analysis
- Offered reasonable alternatives other than those analyzed in the Draft EIS
- Recommended changes or revisions to one or more of the alternatives
- Suggested use of additional or alternative documents, studies, and methods of analyses
- Suggested additional analyses of topics or issues not covered in the Draft EIS
- Requested EFSEC or the Applicant to undertake something (e.g., collect additional information)

Comments that did not fall into these categories were not considered relevant for the environmental analysis. These non-substantive comments were characterized by one or more of the following:

- General comments in favor of or against the Project
- Comments not pertaining to the Project or the areas that could be affected by the Project (such as expounding the benefits of nuclear power)
- Comments that took the form of vague, open-ended, or unrelated questions or opinions

This process resulted in the identification of approximately 1,217 individual substantive comments. All substantive comments were assigned to a resource category or issue category so similar comments could be grouped together and addressed by the appropriate resource specialist and agency staff. A comment-response table (**Tables 10-1A and 10-1B, Appendix 10-1**) was developed to include each substantive comment, its assigned category or resource topic, and a response. Additionally, **Appendix 10-1** identifies the comments that resulted in changes to the EIS and provides where the updates occur within the document.

10.5 Summary Responses to Comments Received on the Draft EIS

After all substantive comments were identified and sorted, common issues were identified for summary responses. Summary responses are provided in the following subsections to address multiple related issues and provide context for the discussion.

10.5.1 Summary Response 1: Project Background and the Need for the Project

10.5.1.1 Comments

Several Commenters questioned or criticized the Project's stated Purpose and Need, expressing the following concerns:

- Commenters questioned the need for the energy that would be generated by the Project, where the energy would be used, and why the Applicant chose the Horse Heaven Hills for the Project's location.
- Comments indicated that Commenters felt that the Purpose and Need are not regionally/locally focused enough to help the public understand the need for the Project.
- Commenters raised concerns that the current Purpose and Need only caters to the Applicant's goal of meeting a nameplate capacity.

10.5.1.2 Response

EFSEC acknowledges the comments regarding the Project's need and has updated Section 1.3 to reflect the Applicant's purpose and need in developing the Project. Section 1.3 has also been updated to reflect EFSEC's purpose and need in developing the EIS.

Code of Washington (RCW) 80.50.010, as follows, guides how EFSEC evaluates the need for additional energy generation in the State of Washington:

> *"it is the policy of the State of Washington to recognize the pressing need for increased energy facilities and to ensure, through available and reasonable methods, that the location and operation of all energy facilities and certain clean energy product manufacturing facilities produce minimal adverse effects on the welfare of the population and environment, including the ecology of the land and its wildlife, and of state waters and their aquatic life (RCW 80.50.010)"*

10.5.2 Summary Response 2: Proposed Action and Alternatives

10.5.2.1 Comments

Multiple Commenters requested that the EIS consider and evaluate additional alternatives to the proposed Project. Specifically, comments covered the following topics:

- Commenters suggested that the Project should reduce the number of turbines and increase the number of solar arrays to achieve the required nameplate capacity.
- Commenters suggested that the Project should be located outside Benton County. Additionally, the Project should consider other locations for the wind turbines whether inside the Lease Boundary or another area entirely.
- Comments expressed concern that the Draft EIS lacked specificity about where exactly the Applicant would place wind turbines within the Lease Boundary.
- Commenters suggested that the Draft EIS needs to include a range of reasonable alternatives rather than just No Project and Proposed Project.
- Commenters suggested the Project could be improved by the following changes:
  - Consider wind turbines that are shorter in height and do not have blinking lights.
  - Consider an alternative with a drastically smaller number of turbines or a shifted site location.

10.5.2.2 Response

The discussion of alternatives has been expanded in the Final EIS to explain the methodology of analyzing the Project as a whole. As the Proposed Action involves "a private project on a specific site," the agency (in this case, EFSEC), per WAC 197-11-440(5)(d), is only required to consider a no-action alternative and reasonable on-site alternatives that achieve the proposal's objective. Analyzing the Project as a whole allows consideration of the most probable worst-case scenario, while also providing the impacts at the component level.

This methodology allows EFSEC to identify components that have higher impact than others. EFSEC has the authority to recommend approval or denial of components of the Project to serve the purposes of RCW 80.50. Using this methodology, this Final EIS is inclusive of multiple design and construction alternatives to the Applicant's Proposed Action.

10.5.3 Summary Response 3: Project and Process Opposition

Comments expressing opposition to the Draft EIS focused on the issues listed below:

Concerns Regarding EIS Methodology

- Commenters expressed concerns regarding EIS formatting, quality control, and copy/paste text from Applicant-prepared technical studies rather than EFSEC/third-party technical studies.

Concerns Regarding Application of Mitigation Measures

- Commenters expressed concerns about the Applicant being held accountable for implementing the mitigation measures.

Concerns Regarding Public Participation in the EIS Process

- A Commenter stated, “The DRAFT EIS needs to be reprocessed to include proper public process, an analysis of a reasonable alternative and an additional public comment period to allow review and comment on the reasonable alternative to be compliant with state law.”
- Commenters expressed concern about the public’s ability to review the Draft EIS within the allotted timeframe.
- Commenters were concerned that consideration and approval of the Project is going straight to EFSEC and bypassing the land use approval of local counties and cities.
- There were concerns that a public hearing was not held, and there was insufficient notification for locals.
- A Commenter stated, “A key local library was not included on the posting list, and other local libraries were not made aware of the Project.”

Concerns Related to Clean Energy

- Commenters were concerned about turbines’ wind-generating consistency and low energy output.
- Commenters expressed concerns regarding the 20- to 30-year lifespan of turbines, including impacts of decommissioning and lack of deconstruction afterward.
- Comments from Commenters suggested that the fuel used to deliver parts and the oil used to maintain the turbines would make this not a carbon-free project or a green project.
- Commenters were concerned that the generated energy would be transported to western Washington or out of state rather than being used, or needed, locally.

10.5.3.1 Response

EFSEC would list all mitigation measures that the Applicant must adhere to within the Site Certification Agreement (SCA). EFSEC and the Project’s Pre-operational Technical Advisory Group and Technical Advisory Committee would be responsible for reviewing whether the Applicant meets the Project’s commitments and required mitigation measures and providing any additional recommendations to the Council for enforcement.

EFSEC’s responsibilities are listed in RCW 80.50. The legislature cited the necessity of balancing the need for new energy facilities with the broad interests of the public. As part of the balancing process, EFSEC must take into account the protection of environmental quality, safety of energy facilities, and concern for energy availability.

10.5.4 Summary Response 4: Earth Resources

10.5.4.1 Comments

Comments were received regarding the Draft EIS's assessment of proposed earthwork. The comments covered the following topics:

- Comments suggested that the Draft EIS didn't provide due consideration of the rich cultural, geological, and natural histories of the Horse Heaven Hills.
- Commenters' comments expressed concern that construction in exposed areas with highly erodible soils would result in dust storms, reduced agricultural productivity through soil loss, and landslides.

10.5.4.2 Response

The EIS includes a comprehensive list of Applicant commitments and EFSEC-developed mitigation measures that address the geological impacts of the Project.

EFSEC has revised mitigation measure Geo-1, which now reads:

> *Minimize soil disturbance activities with the potential for soil compaction when soils are saturated, such as following a major precipitation event. Direct construction away from areas with saturated soils and where drainage may concentrate until soils are no longer saturated and limit vehicular traffic to established access roads. Where possible, leave existing vegetation root structure intact to enhance soil stability and infiltration capacity. Where necessary, utilize BMPs such as low-ground pressure and/or long-reach equipment, temporary matting and work pads, and localized engineered drainage improvements. Where soil compaction is observed to have occurred, de-compact subsoils to a minimum depth of 18 inches or as identified in site reclamation plans and lease agreements.*

10.5.5 Summary Response 5: Air Quality

10.5.5.1 Comments

Comments were received from Commenters regarding the Draft EIS's assessment of air quality impacts. The comments covered the following topics:

- Commenters raised concerns regarding the Project's potential overall carbon footprint and corresponding impacts on both global climate change and the area's microclimate.
- Commenters raised concerns regarding the potential creation of fugitive dust emissions, corresponding impacts on air quality, and mitigation measures proposed to address these impacts.
- Commenters raised concerns regarding ambient particulate matter less than or equal to 10 microns in diameter (PM_{10}), particulate matter less than or equal to 2.5 microns in diameter ($PM_{2.5}$), and regional ozone levels; the lack of dispersion modeling to address these impacts; and the location of the meteorological data used in the analysis.

10.5.5.2 Response

The following responses address the substantive comments on the Draft EIS's analysis on air quality:

- The EIS now includes a specific discussion of carbon footprint and potential global climate change impacts. The new information about the Project and global climate change is presented in Section 4.3.2.5. The

analysis presented in Section 4.3.2.5 concludes that the Project is anticipated to have a negligible to net positive impact on global climate change.

- Regarding the potential for fugitive dust emissions and associated impacts, the EIS includes a comprehensive set of calculations for emissions expected during both construction and operation that were independently checked and verified by EFSEC. These calculations were supplemented with EFSEC-developed fugitive dust emissions from exposed surfaces that were omitted from the Applicant's original analysis. The calculations are summarized in Appendix 4.3-1.
- Tables 4.3-4 and 4.3-7 demonstrate that the Project's overall contribution to regional PM_{10} and $PM_{2.5}$ emissions would be very small relative to the overall quantity of such emissions regionally. As a result, PM_{10} and $PM_{2.5}$ emissions impacts are not expected to be significant. A comprehensive set of fugitive dust best management practices has been proposed by the Applicant to address potential fugitive dust. In addition, EFSEC is proposing that vehicle speeds on unpaved construction roads and exposed surfaces be limited to 15 miles per hour (mph) (rather than the Applicant-proposed 25 mph limit) to further reduce the potential for fugitive dust to be generated by offroad construction-related vehicle traffic.
- A supplemental dispersion modeling analysis of stationary sources during the Construction Stage (concrete batch plant and diesel generators) was performed by the Applicant and independently reviewed by EFSEC (see Appendix 4.3-2). The dispersion modeling used meteorological data from the closest station collecting the necessary data to support the modeling, and the selection of that meteorological data set is consistent with the Washington State Department of Ecology's recommendations. The dispersion modeling demonstrates that construction impacts from the Project would not cause an exceedance of any applicable ambient air quality standards. Regional ozone modeling was not performed because the Project's expected emissions of ozone precursors (nitrogen oxides and volatile organic compounds) are an extremely small percentage of the regional emission inventory and would be temporary. As a result, the Project's impacts on regional ozone levels are expected to be negligible.

10.5.6 Summary Response 6: Water Resources

10.5.6.1 Comments

Commenters submitted comments expressing concerns regarding the Draft EIS's analysis of water resources. The comments covered the following topics:

Concerns about the Project's Acquisition of Water and Water Use

- Several comments from Commenters questioned where Project water would be sourced from and raised concerns that the Project would impact local water sources.
- One Commenter's comment questioned how the Project would dispose of wastewater.
- Several comments indicated a concern with the volume of water needed for construction and panel washing.

Concerns Regarding the Project's Impacts on Surface Waters

- Commenters expressed concern regarding potential contamination of water resources from oil leaks during operation.
- Commenters expressed concern regarding potential Project impacts on adjacent watercourses such as the Columbia and Yakima Rivers.

- A Commenter's comment suggested that a wetland identified in Project mapping was not addressed in the EIS.

10.5.6.2 Response

Within the Final EIS, the City of Kennewick was removed as the Project's water supplier. As noted in the 2022 ASC, water would be sourced from an off-site utility such as a public utility, private irrigator, or well with legal water rights. The water would be transported to the site by truck for use during construction and operation.

In response to concerns from Commenters regarding water management, the following details have been incorporated into the EIS:

- Project construction is estimated to require up to 120 million gallons of water.
- Project operation is estimated to require 5,000 gallons per day for facilities and 2,025,000 gallons annually for solar panel washing.
- The Project would not discharge wastewater to waterbodies. Wastewater would be discharged to an on-site septic system during operation, as described in the ASC.
- The on-site septic system would be permitted and installed according to Washington's Wastewater General Permit Program and Water Quality Standards for Surface Waters of the State.

The following responses were provided to comments regarding potential impacts of the Project on water resources:

- The Applicant committed to developing a Spill Prevention, Control, and Countermeasures (SPCC) Plan for construction and operation, which would apply to potential oil leaks and spills from turbines during construction and operation.
- In response to concerns regarding impacts on watercourses, drainages within the Lease Boundary are intermittent and ephemeral; as such, they are not expected to result in changes to downstream systems beyond the Lease Boundary.
- One wetland was identified within the Project Lease Boundary, 240 feet west of the Micrositing Corridor. This distance is greater than the required buffer distance of 40 feet by Benton County.

10.5.7 Summary Response 7: Vegetation

10.5.7.1 Comments

Comments were received from Commenters regarding the Draft EIS's analysis of vegetation. The comments covered the following topics:

- Commenters raised the following concerns regarding priority habitat including native shrub-steppe:
  - Concern about how Priority Habitats were identified and loss was calculated within the Lease Boundary and Vegetation Area of Assessment (VAA)
  - Concern about the selection of offset ratios and success of restoration and offsetting of priority habitats
  - Concern regarding the characterization of impacts on Priority Habitats
  - Concern regarding the cumulative impacts on shrub-steppe Priority Habitat in the area

- Commenters submitted comments on the potential for vegetation left under the solar arrays to create a fire hazard.
- Commenters raised concerns regarding the introduction and proliferation of invasive plant species.

10.5.7.2 Response

The following are responses to comments on how Priority Habitats were identified, loss calculation, and mitigation:

- The Project has been designed to avoid impacts on native vegetation where possible; however, some loss of Priority Habitats is expected. Habitat in the VAA was mapped using the National Land Cover Database to provide a regional context for the habitat within the Lease Boundary. This allowed for an analysis of the proportional area of shrubland and grassland habitat in the region that the Project may impact.
- A wetland was identified within the Lease Boundary, but the Project's infrastructure would be more than 240 feet away, greater than Benton County's 40-foot required buffer.
- The loss estimates provided in the EIS represent the maximum allowable impact on these habitats if the Project is provided an SCA. The EIS describes mitigation measures to reduce impacts on Priority Habitat, including recommended habitat-offsetting ratios that were developed based on measures described in the Washington Department of Fish and Wildlife's (WDFW's) Wind Power Guidelines and consultation with WDFW. Restored and mitigated habitat would be monitored after installation to measure establishment success. As detailed in the responses to comments provided in **Appendix 10-1**, post-construction monitoring of restored and offset habitat would be required to demonstrate that those habitats are functioning as predicted. If success criteria are not met, the Applicant would be required to provide additional mitigation.

The following is a response to public comments concerning fire hazards:

- Mitigation measure VEG-9 was updated in the EIS to address concerns regarding the potential fire hazard associated with buildup of dead vegetation and potential vegetation removal that may be required along fence lines.

The following is a response to public comments concerning the potential introduction and proliferation of invasive plant species:

- The Project's Revegetation and Noxious Weed Control Plan is designed to avoid introduction of new invasive plants and reduce proliferation of invasive plants.
- As noted in Section 3.5, invasive plants are already present within the Lease Boundary as most of the native habitats in the Lease Boundary have been impacted by introduced plants related to prior land use.

10.5.8 Summary Response 8: Wildlife and Habitat

10.5.8.1 Comments

Comments were received from Commenters regarding the Draft EIS's analysis of wildlife and habitat. The comments covered the following topics:

Concerns Regarding the Quantification of Impacts on Wildlife and Habitat

- Commenters expressed concern that the Draft EIS does not sufficiently address potential impacts on nocturnally migrating birds.

- Commenters submitted comments regarding the language and numeric values presented to quantify the potential bird and bat mortality. Amongst these comments was the suggestion that the EIS should provide an estimate of mortality.
- Commenters submitted comments on the species for which species exposure indices were calculated.

Concerns Regarding the Process for Siting Project Components in Relationship to Wildlife and Habitat

- Commenters expressed concerns on the impact of the East Solar Field in Priority Habitat and modeled wildlife movement corridors.
- Commenters raised concerns regarding the impact of potentially siting turbines within 2 miles of a ferruginous hawk nest and direct/indirect habitat loss for turbines sited within 6 miles of a nest.
- Commenters raised concerns regarding impacts on special status species.
- Related comments expressed concerns on the extent to which the EIS discussed potential impacts on special status species, including ferruginous hawk, burrowing owl, prairie falcon, sagebrush sparrow, Townsend's ground squirrel, and pronghorn antelope.
- Commenters provided comments requesting clarification on data and information presented in tables.

Concerns Regarding the Deployment of Mitigation Measures

- Comments were provided regarding the sufficiency of mitigation measures recommended in the Draft EIS to manage bat and bat mortality. Comments included recommendations to use best available technology to evaluate the magnitude of impacts during Project operation, as well as the effectiveness of mitigation.
- Commenters provided comments on the effectiveness of mitigation measures and suggested the inclusion of performance standards to test mitigation effectiveness.
- Commenters' concerns included the level of authority a Technical Advisory Committee, assigned by the Applicant, would have to make decisions on project mitigation and adaptive management strategies.

Concerns Regarding the Characterization of Residual Effects

- Commenters provided comments indicating that the Draft EIS's characterization of residual impacts underrepresented the level of effect.
- Commenters suggested that ratings of impact magnitude, duration, and extent should be increased.

10.5.8.2 Response

The following responses address substantive comments on wildlife and habitat:

- In general, summary comments are addressed in the Final EIS by updating sections with clarifying language to provide additional details and specificity regarding impacts and mitigation.
- Additional qualitative analysis of potential impacts on migrating birds, including nocturnal migrants, was added to Section 4.6.2.2.
- Quantitative details estimating the potential number of bat fatalities per year were added to Section 4.6.2.2.

- Responses were provided to clarify how species-specific indices were calculated and the rationale for calculations of indirect habitat loss.
- Details on siting of Project components provided by the Applicant were added to Section 4.6 of the Final EIS to further describe how the Project may interact with wildlife movement corridors.

The following provides additional information about the application of mitigation measures:

- Responses were further provided to explain how recommended mitigation measures would manage potential impacts wildlife corridors.
- Responses were provided in **Appendix 10-1** explaining how mitigation measures specific to ferruginous hawk (Spec-5) have been developed to manage impacts on ferruginous hawk habitat if the approved final design includes siting features within 2 miles of a ferruginous hawk nest.
- Section 4.6.2.4 was updated with additional analysis and details about potential Project-related impacts.
- Each species section was updated with information on potential interactions with solar arrays and other ancillary infrastructure where not previously included.
- The analysis of impacts on burrowing owls was updated with additional details on the potential interaction with wind turbines, including literature published on the Altamont Pass Wind Resource Area.
- Information about the Project's potential interaction with modeled habitat concentration areas was added to the Townsend's ground squirrel section.

The following responses address Commenters' concerns about how mitigation measures would be applied by the Applicant and verified by EFSEC:

- Recommended mitigation measures Wild-1, Wild-5, Hab-1, Hab-4, Hab-5, Spec-2, Spec-5, and Spec-12 were updated in response to Commenters' concerns.
- Wild-1 was updated to clarify the type of data to be collected as part of the post-construction bird and bat fatality program, the duration of the program, recommended bat mortality thresholds, and examples of adaptive management that may be implemented during Project operation.
- Wild-5 and Hab-1 were updated to clarify management of exclusion zones around sensitive habitat and modeled movement corridors, respectively.
- Hab-4 was updated to require the establishment of a Pre-operational Technical Advisory Group and, subsequently, a Technical Advisory Committee during Project operation.
- Additional details were added to Hab-4 to clarify the groups that may be included in the committees.
- Finally, more specificity was added to Spec-5 and Spec-12 to clarify how mitigation may be implemented.

Responses were provided to comments from the public regarding the characteristics of residual impacts to provide additional details on how the characterizations were made.

10.5.9 Summary Response 9: Energy and Natural Resources

10.5.9.1 Comments

Comments were received regarding the Draft EIS's analysis of energy and natural resources. The following comments suggest concerns regarding the replacement of existing power sources:

- Commenters expressed concern the Project would not offset carbon dioxide emissions.
- Commenters suggested that the EIS list all subsidies, tax credits, emissions credits, and similar to allow a cost comparison of the proposed project's power generation against existing generation sources.
- Commenters were concerned that the Draft EIS does not adequately analyze the impact a wind farm may have on slowing down the wind as it moves through the Project area.

The following comments suggested concerns regarding the recyclability of turbine blades and other Project components:

- Commenters are concerned that the wind turbines would not be recyclable and instead be placed in landfills reducing the capacity for municipal solid waste.
- Commenters raised concerns that wind energy is not "green" when considering the full lifecycle of turbines and the material inputs for the foundations.
- Commenters expressed concerns that wind turbines are not economically viable.

10.5.9.2 Response

EFSEC's responsibilities are listed in RCW 80.50. The legislature cited the necessity of balancing the need for new energy facilities with the broad interests of the public. As part of the balancing process, EFSEC must take into account protection of environmental quality, the safety of energy facilities, and concern for energy availability.

The final version of the EIS does not include an evaluation of "wind blockage effect." Under SEPA, the analysis of impacts is related to the natural and built environment and not wind turbine performance.

Section 4.7 includes recommended mitigation measures (e.g., ENR-7) that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's Operation Stage, such as recycling all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.

10.5.10 Summary Response 10: Land and Shoreline Use

10.5.10.1 Comments

Comments were received from Commenters regarding the Draft EIS's analysis of land and shoreline use. The following describes the Commenters' comments and concerns about the use of agricultural lands for the Project:

- Commenters raised concerns that the Project would impact dryland agricultural lands and that the farms in the Horse Heaven Hills would no longer produce their historical crop yields.
- Commenters expressed concerns the Project would result in the conversion of agricultural lands of long-term commercial significance without disclosing the environmental impacts of the conversion. Similarly, Commenters expressed concerns that the conversion of agricultural lands of long-term commercial significance would have a high cumulative impact.

- Comments stated that proposed mitigation measures are inadequate to appropriately mitigate the environmental impacts of conversion of agricultural lands of long-term commercial significance.

The following describes the Commenters' comments about the Project's conformity with land use plans and zoning:

- The Project would cause increased urban sprawl or prevent future housing developments.
- The Project location does not conform to the Benton County Comprehensive Plan
- The Project location violates the Benton County Land Use Code.

The following describes the Commenters' concerns regarding the Project's decommissioning and land restoration:

- Land restoration after turbine use has not been documented.

10.5.10.2 Response

Section 4.8 discusses the Project's impacts on agricultural lands and agricultural productivity. Section 4.8 also includes a list of mitigation measures (LSU-1 through LSU-5) that would protect agricultural activities through construction, operation, and decommissioning. Mitigation measure LSU-5 requires a Detailed Site Restoration Plan, per Washington Administrative Code (WAC) 463-72-050, for restoring the site to its preconstruction character.

Micrositing of the Project would be used to avoid and minimize disruptions to existing cropland. Additionally, the Project would provide new revenue to agricultural landowners via lease agreements with participating landowners.

For aspects of the Project's design that may not be in alignment with Benton County Code 11.17 Growth Management Act Agricultural District or the Benton County Comprehensive Plan, EFSEC has reviewed discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant.

10.5.11 Summary Response 11: Historic and Cultural Resources

10.5.11.1 Comments

Comments were received from Tribal governments, members of the public, agencies, and organizations regarding the Draft EIS's analysis of historic and cultural resources. The following revisions to the EIS were requested regarding the method of analysis for historic and cultural resources:

- Commenters requested justification on why a cultural briefing is not done before permitting.
- Commenters requested the EIS Include the Yakama Tribe in the Tribal Governments Distribution List as well as any historical and cultural discussions and activities.
- Commenters requested an explanation of how commitments to monitoring would be maintained and resources protected.
- Commenters requested that the EIS be revised based on inputs and corrections from the Yakama Nation.

10.5.11.2 Response

The following responses address concerns about the method of analysis for historical and cultural resources:

- The Applicant has committed to conducting cultural briefings. The briefing is part of the Project siting process. Additionally, briefings would occur prior to any impacts from the Proposed Action.
- The Applicant has committed to pursuing an Archaeological Excavation and Removal Permit if any alteration of any precontact archaeological site were to occur, regardless of the level of disturbance. For historic-era archaeological sites, the Applicant would apply for permits related to any removal or excavation of those locations that are eligible for or listed on the National Register of Historic Places."
- Confederated Tribes and Bands of the Yakama Nation is listed in the middle of the first column of the Tribal Government distribution list.
- Tribal representatives would be invited to monitor the site during construction. Recorded historic and cultural resources would be avoided through modification of Project design and through buffers and protective signage or flagging, as well as monitoring, as appropriate.
- Implementation of commitments would be ensured through cultural resource worker education/training, the Preconstruction Survey and Cultural Resource Avoidance Plan, and an Inadvertent Discovery Plan for Archaeological Resources during Construction.
- The Applicant Commitments could be clarified to state that monitoring would be conducted by qualified professional archaeologists.
- EFSEC has initiated and would continue government-to-government consultation with Tribes. The final version of the EIS clarifies when formal consultation was initiated and distinguishes formal consultation from all other communication and engagement with Tribes. The EIS reports the information shared during formal consultation.
- Factual errors and inconsistencies identified have been corrected in the EIS. The EIS reflects concerns about avoidance, impact ratings, proposed mitigation measures, compliance with the State Environmental Policy Act (SEPA), impacts to Treaty-reserved rights, and impacts to Traditional Cultural Properties (TCPs) and the traditionally important landscape.
- Because of confidentiality, the EIS cannot disclose the locations of cultural resources, such as archaeological sites and TCPs.

10.5.12 Summary Response 12: Visual Aspects, Light and Glare

10.5.12.1 Comments

Comments were received regarding the Draft EIS's analysis of visual aspects, light and glare. The comments cover the following topics:

Visual Aspects

Commenters expressed concerns regarding the method of analysis used in the Draft EIS for visual aspects:

- Include additional viewpoints (key observation points [KOPs]) and visual simulations in the analysis, such as closer and less obstructed views from Benton City and Interstate 82.

- Update visual simulations to remove atmospheric hazing to more clearly depict the Project during ideal viewing conditions.
- Revise and update viewshed mapping out to 25 miles for the two wind turbine options, based on the Clean Energy States Alliance visual methods, and include additional placenames and locational data on the maps to improve legibility.

Commenters expressed the following concerns and requests regarding the determination of impact magnitude for visual aspects:

- Increase impact magnitude based on the proximity of the Project to residences and other sensitive viewing locations.
- The analysis does not meet the requirements of the Benton County Comprehensive Plan and/or WAC 463-60-362(3).

Commenters expressed the following concerns and requests about the application of recommended mitigation measures:

- Modify the Project design to reduce visual impacts, including a suggestion from a large number of Commenters that some or all of the proposed wind turbines to be located on the Horse Heaven Hills be removed to reduce impacts on the landscape and views from the communities north of the Project. This would expand on mitigation measure VIS-1 which focused on wind turbines located within ½ mile of residences.
- The language of some mitigation measures was modified in the EIS. Such as mitigation measure VIS-1 to relocate wind turbines within a smaller buffer from residences, and others removed altogether including mitigation measure VIS-4 as being impractical and unnecessary.
- A Commenter specifically questioned the accuracy of the finding of unavoidable, significant adverse impacts on visual aspects.

Light and Glare

Commenters expressed the following concerns and requests regarding the evaluation of light and glare:

Commenters raised concerns about shadow flicker affecting neighboring residents. Additionally, Commenters were concerned about the adequacy and clarity of the proposed complaint resolution system in regard to shadow flicker complaints.

- Commenters questioned the applicability of mitigation measure SF-1 and suggested that it be updated to clarify that it would apply to non-participant receptors.
- Commenters requested that the EIS text be updated to clarify that the complaint resolution system would encompass all complaints—there would not be separate systems and points of contact for different potential impacts (e.g., noise, lighting, shadow flicker, etc.).
- Commenters expressed general concerns about light pollution from the Project.
- Commenters recommended the use of Aircraft Detection Lighting System (ADLS) to limit the flashing Federal Aviation Administration lighting.

10.5.12.2 Response

Visual Aspects

The following responses address concerns about the method of analysis for visual aspects:

- The EIS was updated to include the addition of three new KOPs to further assess views from Benton City, Interstate 82, and the Wallula Gap (as viewed from U.S. Highway 730/12 in Washington State) with accompanying visual simulations depicting the Project.
- Visual simulations developed from KOPs 3, 5, 6, and 7 in the Draft EIS were updated to reduce the effect of atmospheric conditions to best depict visibility of the Project under exceptionally clear atmospheric conditions.
- The wind turbine viewshed maps were updated to look out 25 miles, as was also done in Appendix 3.10-2, as well as to include additional placenames and locational data to more clearly depict these data for the reader.

The following responses address concerns about the determination of impact magnitude for visual aspects:

- No changes were made to impact magnitude as the analysis already indicated high, long-term, unavoidable, regional impacts associated with both wind turbine options and the comprehensive Project as viewed from most viewpoints within 5 miles of the Project.
- The Project and associated analysis meet the requirements of WAC 463-60-362(3); therefore, no changes were made to the EIS. Similarly, the analysis and determination of conformance with the Benton County Comprehensive Plan, associated with potential visual impacts on landscapes identified in the plan, were reviewed. No changes to the analysis were found to be required as these lands have not been placed into Open Space Conservation or other types of conservation, and since there are no specific policies to protect the landscapes impacted by the Project, the Project would be in compliance with this aspect of the county plan.

The following responses address concerns about the application of recommended mitigation measures:

- Based on the analysis within the EIS considering full build-out of the Project, no changes to the impact magnitudes can be made until the Project design or turbine locations are revised by the Applicant or as required by EFSEC.
- Commenters suggested narrowing the scope of mitigation measure VIS-1 regarding relocating turbines within the foreground distance zone (0 to 0.5 miles), but based on previous, similar projects using a similar distance threshold, no change was made to the analysis.
- Mitigation measure VIS-5 presented in the Draft EIS was established to reduce impacts on views resulting from visibility of the proposed solar panels. This mitigation measure was renamed in the Final EIS as VIS-4. The mitigation measure was updated in the Final EIS to reflect its intended use which is within 0.5 miles of Project-specific KOPs and residences.
- Mitigation measure VIS-4 from the DEIS was removed as it was found to be technologically limited, and the revised VIS-5 would more directly reduce impacts on adjacent views resulting from the installation of solar panels and associated infrastructure. All visual mitigation numbering was updated to account for the removal of VIS-4.

- No changes were made to the finding of unavoidable, significant impacts on visual aspects.
- Based on the current design of the Project, including turbines along the Horse Heaven Hills ridgeline, the Project would dominate views from highly sensitive viewing areas and modify landscape character within the region, including landscapes identified for protection in the Benton County Comprehensive Plan. While, as discussed earlier in this section, these lands have not yet been placed into Open Space Conservation or other types of conservation, concern for and preservation of the area's landscape character has been identified as an important value.

Shadow Flicker

Impacts from shadow flicker are described in Section 4.10. Based on a conservative modeling analysis performed in support of the EIS, the Project is not expected to be a significant source of shadow flicker. If there are shadow flicker complaints or impacts, measures to resolve and mitigate these impacts have been outlined as part of the recommended mitigation presented in Section 4.10.

In the first sentence of mitigation measure SF-1, the word "nearby" was replaced with "non-participating". The second sentence of mitigation measure SF-1 was updated to read: "Shadow flicker can usually be addressed by planting trees, shading windows, operational programming, or other mitigation measures."

Light

Impacts from lighting are described in Section 4.10. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations.

10.5.13 Summary Response 13: Noise and Vibration

10.5.13.1 Comments

Comments were received regarding the Draft EIS's analysis of noise and vibration. The comments covered the following topics:

Noise

- Commenters expressed general concerns about the Project generating noise pollution. As part of their concerns regarding noise pollution, Commenters raised a specific concern about construction occurring after dark/nighttime.
- Commenters suggested that the Project utilize a complaint resolution procedure to address any noise complaints received from residents. A related comment raised concerns about the effectiveness of the complaint resolution process.
- Commenters expressed concerns that the turbines would be located too close to receptors.
- Commenters were concerned that wind turbines would be a source of low-frequency noise (LFN), which is commonly considered to be sound below 200 Hertz (Hz) frequency. Similarly, Commenters raised concerns that wind turbines would be a source of infrasound, which is commonly considered to be sound below 20 Hz frequency.
- A Commenter requested a revision to noise mitigation measure N-3, the monitoring of noise during nighttime construction. Similarly, a Commenter questioned the necessity of Mitigation Measure N-6.

Vibration

- Commenters expressed a general concern about ground vibration generated by wind turbines.
- Commenters expressed concerns that LFN and infrasound would also be a source of vibration traveling through the atmosphere.

10.5.13.2 Response

Based on comments received from Commenters, the EIS has been updated to reflect the following responses to comments on noise and vibration:

Noise

- Noise impacts and assessments are provided in Section 4.11. Noise generated by the Project was estimated using state of the science noise propagation modeling with vendor-provided noise source data and site layouts. The results indicated that neither noise nor vibration is expected to cause impacts detrimental to human health.
- To address the concerns about construction occurring after dark, mitigation measure N-3 was revised to include monitoring noise during nighttime construction operations (between 10 p.m. and 7 a.m.), when construction activities have the potential to impact neighboring noise-sensitive receptors or reduce activities to ensure that construction noise does not exceed state noise limits. This monitoring requirement will cover the entirety of the construction activities during nighttime hours. Details of the complaint resolution procedure have not yet been formalized.. Daytime hours are set by the state regulation (WAC 173-60-040) as 7 a.m. to 10 p.m.
- Chapter 2 provides the micrositing layouts for Turbine Option 1 and Option 2. The layouts are approximations as the Applicant is requesting the flexibility to site turbines anywhere within the Micrositing Corridor. Noise figures have been updated in the Final EIS to show more detailed views of the closest approximate locations of wind turbines to identified receptors.
- The EIS has been updated to address LFN and infrasound. Advances in wind turbine and blade design have significantly reduced LFN emissions from wind projects, and LFN from the Project is not expected to be a source of community annoyance.
- The Project is not expected to be a source of infrasound at levels that would impact humans or structures.

Vibration

The EIS has been updated to address ground vibration. While wind turbines would generate ground vibration at the base of the structures, analysis has shown that at such low levels, this impact would be negligible.

10.5.14 Summary Response 14: Recreation

10.5.14.1 Comments

Comments were received from Commenters regarding the Draft EIS's analysis of recreation use areas. The comments covered the following topics:

- Danger to paragliders and hang gliders who use areas near the Lease Boundary as launch locations.
- Concerns regarding impacts on recreation such as hiking, birdwatching, hunting, and biking.

- Concerns regarding visual impacts on recreation sites.

10.5.14.2 Response

The following responses address Commenters' concerns on the Draft EIS's analysis of recreation:

Paragliding

EFSEC-identified mitigation measures relating to paragliding and hang-gliding are provided in Section 4.12. Paragliding and hang-gliding have not received government authorization or permission to use the launch locations identified closest to the Project.

Hiking and Similar Recreational Activities

Impacts on hiking, birdwatching, hunting, and biking are analyzed in Section 4.12. Visual impacts on recreation sites are analyzed in Section 4.10 and summarized in Section 4.12.

10.5.15 Summary Response 15: Public Health and Safety

10.5.15.1 Comments

Comments were received from Commenters regarding the Draft EIS's analysis of public health and safety. The comments covered the following topics:

- Commenters expressed general concerns that the Project would affect human health.
- The Project would have effects on air quality, including dust and suspended herbicides and pesticides, and resulting health effects on people residing downwind.
- Commenters raised concerns that the Project could increase the risk of wildfires and smoke.
- The Project could increase the risks to human respiratory health from dust.
- Commenters were concerned that the proximity of turbines to residences would be a detriment to human health.
- Commenters raised concerns that blinking red lights, low-frequency noise and vibrations, and shadow flicker produced by the Project would adversely impact human health.
- The comments expressed a concern that the turbines would interfere with fire suppression aircraft during wildfires.
- Commenters suggested that the Applicant should coordinate with local fire departments in preparation of the Project's Emergency Response Plan.

10.5.15.2 Response

The following responses address Commenters' concerns on the Draft EIS's analysis of public health and safety:

- General impacts of the Project on public health are discussed in Section 4.13.2.
- Impacts of fire risk resulting from the Project are discussed in Section 4.13.2, and the Applicant has committed to measures that would mitigate fire risk (Section 4.13.2.4), including fire suppression measures and implementation of an Emergency Action Plan. The Applicant has specified that the finalized Emergency Response Plan would be developed and implemented in coordination with the Benton County Fire Marshal

and other agencies before construction began. Public comments related to fire suppression aircraft access are addressed in a new recommended mitigation measure, PHS-1. This new mitigation measure requires the Applicant to temporarily shut down turbines if a fire were to occur in the region

- Section 4.13.2.1 has been updated to include an analysis of fugitive dust effects on public health and safety in response to Commenters' concerns about dust, pesticides, and herbicides being transported downwind of Project activities. In Section 4.3.2.4, Applicant commitments include measures that would assist in suppressing dust and prevent impacts to human health.
- As discussed in Section 4.13.2.1, agricultural practices within the Lease Boundary have likely introduced herbicides and pesticides to the environment. When these lands are exposed to wind and ground disturbance, airborne dust can be transported to nearby lands. Herbicides and pesticides attached to dust particles could, therefore, also be transported away from the Lease Boundary and into neighboring communities. As a result of past and present agricultural practices that involve exposing soil to windy conditions, the suspension of dust with potential pesticides and herbicides attached would continue to occur regardless of whether the Project is approved.
- Project impacts on public health related to LFN are addressed in Section 4.11 and shadow flicker and lighting are discussed in Section 4.10.2.2.

10.5.16 Summary Response 16: Transportation

10.5.16.1 Comments

Comments were received from members of the public and state and local agencies regarding the Draft EIS's analysis of transportation. The comments covered the following topics:

- Commenters expressed concerns about the lack of detail regarding improvements required for hauling construction equipment and materials.
- Commenters expressed concern regarding the adequacy of the traffic analysis, which did not utilize actual traffic counts at intersections.
- Commenters were concerned about how the Project would affect the region's transportation system.
- Commenters were concerned that the EFSEC process supersedes typical state and local permitting.
- The potential for roads to be ruined or traffic impeded due to use of trucks throughout the construction phase of the Project. Additionally, this concern included the daily use of work vehicles and heavy duty trucks that would be used for the delivery of oversize and overweight materials.
- Commenters were concerned that the Project would not be required to adhere to existing access restrictions and use requirements for each of the highways.
- Commenters had concerns regarding construction-related traffic being considered short term, even though construction would occur for multiple years.

10.5.16.2 Response

The following responses address Commenters' concerns on the Draft EIS's analysis of transportation resources:

- A detailed traffic analysis was requested by EFSEC. The Applicant provided an updated Traffic Impact Assessment (TIA) in September 2023 that included additional details regarding the improvements required for hauling construction equipment and materials, Appendix X of the ASC. EFSEC will require supplemental analysis, prior to construction, once haul routes for oversize or overweight components, are finalized.
- The updated TIA included the Washington State Department of Transportation's input on scope, methodology, and the improvements known to be required at the time of the publication of this EIS. These details are included in the EIS.
- This SEPA analysis identifies and analyzes environmental impacts associated with a governmental decision to permit this Project. The EIS describes those impacts as they pertain to transportation. EFSEC is the state's regulatory agency that determines compliance with state laws and the terms set in the SCA. EFSEC contracts with other state agencies for on-site inspections. EFSEC has the regulatory authority to enforce compliance with a state law and the conditions in the SCA through fines and other actions.
- Section 4.14 discusses truck counts, oversize and overweight deliveries, and the Project's potential impacts on transportation resources.
- Impacts occurring during construction continue to be identified as short term. Construction would occur over multiple years but would not occur during the full extent of each year. The Project may be phased, and therefore, the impacts would be expected to last for months at a time during the years identified for construction.

10.5.17 Summary Response 17: Public Services and Utilities

10.5.17.1 Comments

Comments were received from Commenters regarding the Draft EIS's analysis of public services and utilities. The comments covered the following topics:

- Commenters noted that the Horn Rapids Landfill in the City of Richland is closed and cannot accept solid waste from operation or decommissioning.
- Commenters raised concerns that the new 75-acre landfill at Horn Rapids didn't include waste from the proposed Project in its lifecycle capacity analysis.
- Commenters raised concerns that utility rates would increase due to subsidies and maintenance costs associated with wind turbines.
- Comments expressed a concern that wind energy would do little to mitigate the increasing risk of power grid blackouts in the Northwest.
- Commenters raised concerns that wind energy reduces surplus hydroelectric sales revenue, which increases net hydroelectric power costs, and ultimately increases retail electricity rates.
- A Commenter's comment noted that an analysis by the Western Resource Adequacy Program found that wind power provides the lowest effective capacity in the key winter months when blackouts are most likely.

- A Commenter's comment noted that the generation mix in the local area for public power utilities is already up to 93 percent non-emitting; therefore, this project is not needed to meet the state's clean energy requirements.
- Commenters noted that solar peak production is in summer and early fall, which complements hydroelectric generation. In contrast, wind generation is expected to peak at the same time as hydroelectric generation.
- Commenters noted that the City of Kennewick cannot provide the water needed for construction and operation of the Project.

10.5.17.2 Response

Section 3.15.1 addresses the waste streams that the Horn Rapids Landfill can accept. Chapter 15.04 of the Richland Municipal Code governs the use of the Horn Rapids landfill by residential and commercial Richland and non-Richland entities.

EFSEC's responsibilities are listed in RCW 80.50. The legislature cited the necessity of balancing the need for new energy facilities with the broad interests of the public. As part of the balancing process, EFSEC must take into account protection of environmental quality, the safety of energy facilities, and concern for energy availability.

10.5.18 Summary Response 18: Socioeconomics

10.5.18.1 Comments

The following summary comments describe Commenters concerns related to the evaluation of socioeconomics and environmental justice in the Draft EIS:

- Commenters expressed concerns that the Draft EIS analysis did not adequately address occupation, education, income, and wealth as part of the socioeconomic section.
- Commenters raised concerns that the Draft EIS does not adequately address majority-minority communities like those that occur in Benton City and Finley.
- Commenters were concerned that mitigation measures such as active dust suppression, engine idling, noise mitigation, traffic management, and emergency response plans have little to do with socioeconomics.

The following comments describe Commenters' concerns related to the Project's fiscal and economic impacts:

- Commenters express a general concern that the local community would not receive the benefits from the Project that the Applicant has detailed in the ASC while having to deal with downsides of a large construction project.

10.5.18.2 Response

The following responses address Commenters' concerns about the evaluation of social conditions within the study area:

- Section 3.16 describes the socioeconomic existing conditions, including low-income and people of color communities, and Section 4.16 presents the analysis of potential impacts and mitigation measures on socioeconomics, including low-income communities, people of color, and consideration of the environmental justice index.

- Sections 3.16 and 4.16 present a comprehensive analysis of socioeconomics, including, but not limited to, population and growth rate (including low-income residents and people of color), economic conditions, fiscal conditions, taxation, workforce and economics, housing, and schools.
- The impact of wind farms on property values is addressed in Section 4.16.

The following responses address Commenters' concerns about the evaluation of economic conditions within the study area:

- Appendix 4.16A of the EIS presents the Economic Impact Analysis of the Project's impact on the study area.
- The Project would supply renewable energy, which is aligned with the State of Washington's goal of making its energy supply carbon neutral by 2030 (Senate Bill 5116, enacted into law in 2019). Beyond the growing demand from utilities, industrial power buyers have announced plans to purchase renewable energy, and wind and solar energy are poised to help meet this demand over the long term.
- Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits.
- Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project.
- Benton County would benefit economically throughout the life of the Project as local ordinances would require that the Applicant pay taxes annually.
- Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.

10.5.19 Summary Response 19: Cumulative Effects

10.5.19.1 Comments

Comments were received from Commenters' regarding the Draft EIS's analysis of cumulative effects. The comments covered the following topics:

- Commenters expressed a concern about why the Draft EIS identified certain projects for inclusion in the analysis of cumulative impacts and not others. Similarly, commenters were concerned that the Draft EIS did not consider the cumulative impacts of the Project on wind farms east of the Tri-Cities.
- Commenters expressed a specific concern that the Draft EIS did not consider cumulative impacts of the Project on the sandhill crane.
- A Commenter suggested that the conversion of agricultural lands with long term commercial significance would have a high cumulative effect. Related comments expressed concern that the analysis of cumulative impacts ignores the impact of solar arrays, the battery energy storage system(s), substations, and operations facilities on agricultural productivity.
- Commenters noted that the Draft EIS's analysis of cumulative effects should include evaluating the impacts of alternatives.

- A Commenter expressed a concern about the analysis of cumulative impacts considered mitigation measures.
- A Commenter expressed a concern that the Draft EIS contains no analysis of cumulative effects on habitat, especially the east/west wildlife corridor along the ridgeline of the Horse Heaven Hills.
- A Commenter questioned whether the cumulative impacts of the Project on migratory birds were evaluated in the Draft EIS. A specific interest was related to what cumulative impact the Project would have when combined with other wind farms in the Columbia River Gorge areas of Washington and Oregon.

10.5.19.2 Response

The following responses address Commenter concerns on the evaluation of cumulative effects:

- Table 5-1 in Section 5.0 presents a list of past and present actions, and other reasonably foreseeable developments. Table 5-1 lists the Stateline Wind and Nine Canyon Wind Projects which are east of the Project Lease Boundary.
- The discussion of alternatives has been expanded in the Final EIS to explain the methodology of analyzing the Project as a whole.
- Section 4.8 Land and Shoreline Use examines the Project's impact on agricultural resources and productivity. Table 5.2 includes a discussion of cumulative impacts on agricultural resources.
- Section 5.0 of the Final EIS includes an updated analysis of cumulative effects on wildlife and habitat.
- The EIS's Executive Summary includes a comprehensive summary of the Applicant's commitments and recommended mitigation measures for each resource.

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APPENDIX 3.5-1

Habitat Subtype Photographs

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Photo 1: Active wheat field representative of the agriculture habitat type (Tetra Tech 2021[1]).

Photo 2: Developed or disturbed habitat type (Tetra Tech 2021).

[1] Tetra Tech. 2021. 2021 Botany and Habitat Survey Report for Horse Heaven Wind Farm. Prepared for Horse Heaven Sind Farm, LLC by Tetra Tech. August 2021.

Photo 3: Eastside (interior) grassland along Badger Canyon (Tetra Tech 2021).

Photo 4: Non-native grassland dominated by cheatgrass (*Bromus tectorum*) and cereal rye (*Secale cereale*) (Tetra Tech 2021).

Photo 5: High-quality planted grassland dominated by native plants big bluegrass (*Poa secunda* ssp. *juncifolia*) and bluebunch wheatgrass (*Pseudoroegneria spicata*) (Tetra Tech 2021).

Photo 6: Dwarf shrub-steppe dominated by rock buckwheat (*Eriogonum sphaerocephalum*) and Sandberg bluegrass (*Poa secunda*) in the northwestern part of the Micrositing Corridor (Appendix K, Horse Heaven Wind Farm, LLC 2021[2]).

[2] Horse Heaven Wind Farm, LLC. 2021a. Horse Heaven Wind Farm Washington Energy Facility Site Evaluation Council Application for Site Certification. EFSEC. Docket Number: EF-210011. February 2021.

Photo 7: Rabbitbrush shrubland in area that was burned in 1990 during the Locust Grove Fire (Tetra Tech 2021).

Photo 8: Big sagebrush shrub-steppe habitat with evidence of disturbance from high cover of cheatgrass (Tetra Tech 2021).

APPENDIX 3.8-1

Land and Shoreline Use Consistency Analysis

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Comprehensive Plan Analysis

Table 3.8-1A shows an analysis of the Project's consistency with the Benton County Comprehensive Plan's relevant goals and policies. Revised Code of Washington (RCW) 36.70B.040 requires that, at minimum, Growth Management Act (GMA) regulated counties and cities must consider the following four factors in determining a proposed project's consistency with their development regulations or, in the absence of applicable development regulations, with their comprehensive land use plans:

- The type of land use allowed, such as the land use designation
- The level of development allowed, such as units per acre or other measures of density
- Infrastructure, such as the adequacy of public facilities and services to serve a proposed project
- The characteristics of the proposed development, measured by the degree to which a project conforms to specific development regulations or standards

For aspects of the Project's design that are not in alignment with the Benton County Comprehensive Plan, the Washington Energy Facility Site Evaluation Council (EFSEC) would review discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant.

Table 3.8-1A: Benton County Comprehensive Plan Update Goals and Policies Consistency Analysis

Element Goal / Policy	Analysis
LU Goal 1: Ensure that land uses are compatible with surrounding uses that maintain public health, safety, and general welfare.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which provides that commercial wind farms and major solar power generating facilities may be permitted within the GMA Agricultural District if a conditional use permit is issued by the Hearing Examiner.
LU Goal 1 Policy 1: Maintain a mix of land uses that supports the character of each rural community.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which allows commercial wind farms with approval of a conditional use permit issued by the Board of County Commissioners.
LU Goal 1 Policy 3: Maximize the opportunities for compatible development within land use designations to serve a multitude of compatible uses and activities.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which allows commercial wind farms with approval of a conditional use permit issued by the Board of County Commissioners.
LU Goal 6: Preserve rural lifestyles outside UGAs and incorporated areas while accommodating new population growth consistent with the protection of rural character.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which allows commercial wind farms with approval of a conditional use permit issued by the Board of County Commissioners.
LU Goal 6 Policy 2: Development in rural areas is typified by large lots and less dense development. Favoring development that is less dense and has larger lots helps maintain the rural character of designated rural areas and supports the protection of ground and surface water.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which allows commercial wind and solar farms with approval of a conditional use permit issued by the Board of County Commissioners.

Table 3.8-1A: Benton County Comprehensive Plan Update Goals and Policies Consistency Analysis

Element Goal / Policy	Analysis
LU Goal 6 Policy 3: Designated rural areas will be utilized to reduce the inappropriate conversion of agricultural lands, prevent sprawling low-density development and assure that rural development is compatible with surrounding rural and agricultural areas.	The Project is consistent with LU Goal 6 Policy 3 as agricultural practices within the Lease Boundary may be allowed to continue throughout the operation stage. Additionally, the Project's presence would prevent future low-density, sprawling development within the Lease Boundary.
LU Goal 6 Policy 14: Support and encourage the use of and application of Firewise principles and other fire risk reduction measures consistent with the Benton County Natural Hazard Mitigation Plan and Community Wildfire Protection Plan to reduce fire risk for urban development, urban subdivisions, rural subdivisions and large rural developments susceptible to wildfires. Encourage the implementation of the Firewise principles, or similar best management measures, applicable to individual lots on all lots at risk from wildfires.	Appendix P of the Applicant's ASC includes a Draft Emergency Response Plan that addresses fire prevention and calls for the preparation of a Fire Prevention Plan. If the Applicant complies with their Draft Emergency Response Plan and prepares a site-specific Fire Prevention Plan, the Project would be consistent with LU Goal 6 Policy 14.
LU Goal 6 Policy 15: Encourage new rural development away from the 100-year floodplain, and as guided in the County's Flood Damage Prevention Ordinance, CAO, and SMP.	The Project is consistent with LU Goal 6 Policy 15 as the Lease Boundary does not intersect the referenced special land use designations.
NR Goal 1: Conserve and maintain agricultural land of long-term commercial significance as the local natural resource most essential for sustaining the County's agricultural economy.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which allows commercial wind and solar farms with approval of a conditional use permit issued by the BCC. Additionally, portions of the Lease Boundary would still be able to support agricultural activities.
NR Goal 1 Policy 1: Conserve areas designated "GMA Agriculture" in the Comprehensive Plan for a broad range of agricultural uses to the maximum extent possible and protect these areas from the encroachment of incompatible uses.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which allows commercial wind and solar farms with approval of a conditional use permit issued by the Board of County Commissioners. Additionally, portions of the Lease Boundary would still be able to support agricultural activities.
NR Goal 1 Policy 3: Recognize that only uses related or ancillary to, supportive of, complementary to, and/or not in conflict with agricultural activities are appropriate in areas designated GMA Agriculture.	The Project is consistent with BCC zoning ordinance Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit, which allows commercial wind and solar farms with approval of a conditional use permit issued by the Board of County Commissioners. Additionally, portions of the Lease Boundary would still be able to support agricultural activities.
NR Goal 1 Policy 4: Apply development standards that conserve water resources when reviewing proposed new non-agricultural developments to sustain the ability of the regional agricultural economy to expand and respond to new market conditions and opportunities.	The Project is consistent with NR Goal 1 Policy 4. The Applicant has committed to obtaining water through licensed vendors. Additionally, the Applicant has committed to conserving water through limited washing of panels and allowing wash water to infiltrate the ground surface. Finally, the Applicant has committed to mitigating water impacts in accordance with Ecology guidelines.

Table 3.8-1A: Benton County Comprehensive Plan Update Goals and Policies Consistency Analysis

Element Goal / Policy	Analysis
WR Goal 1: Conserve, maintain, and manage existing ground and surface water resources to meet existing and future water supply needs for cities, farms, industry, and rural growth.	The ASC states that the Project would obtain water through a vendor agreement and that water obtained from the City of Kennewick's water system would be hauled to the site for the Project's construction, operation, and decommissioning stages. As part of their commitments, the Applicant has identified water conservation practices that the Project would apply throughout each stage of the Project. As a result of not drawing water directly from a surface water or groundwater source, the Project is consistent with WR Goal 1.
WR Goal 4: Protect and enhance surface water resources to support rivers, streams, and wetlands that support fish and wildlife species and associated habitats.	There are no major rivers or other perennial streams within the Project Lease Boundary; however, the ASC presents a list of Applicant commitments that would help minimize off-site impacts from erosion, sedimentation, and stormwater runoff. Through the implementation of Applicant commitments, the Project would be consistent with WR Goal 4.
CA Goal 1: Protect the functions and values of critical areas within the county with land use decision-making and development review.	The Project is consistent with CA Goal 1 as the Applicant has submitted an ASC to EFSEC for review and EFSEC is preparing a SEPA-compliant EIS. Additionally, the Project would require a conditional use permit under Chapter 11.17.070 Growth Management Act Agricultural District – Uses Requiring a Conditional Use Permit from the Board of County Commissioners.
CA Goal 1 Policy 1: Apply standards, regulations, and mitigation strategies to development during the permitting and development approval process that protects critical areas functions and values.	The Project is consistent with CA Goal 1 Policy 1 as the Applicant has submitted an ASC to EFSEC for review that is inclusive of mitigation strategies in response to applicable regulations. Additionally, EFSEC is preparing a SEPA-compliant EIS that includes Applicant commitments and mitigation strategies that address potential impacts on critical areas.
CA Goal 2: Protect life and property and avoid or mitigate significant risks to public and private property and to public health and safety that are posed by frequently flooded and geologic hazard areas.	The Project is consistent with CA Goal 2 as it would be constructed in accordance with applicable codes and standards.
CA Goal 2 Policy 1: Limit developments in areas with higher risk for natural disaster or geologic hazard unless it can be demonstrated by the project proponent that the development is sited, designed, and engineered for long term structural integrity and that life and property on- and off-site are not subject to increased risk as a result of the development.	The Project is consistent with CA Goal 2 as it would be constructed in accordance with applicable codes and standards.
CA Goal 3: Protect the County's natural areas, shorelines, and critical areas as unique assets to the community.	The Project is consistent with CA Goal 3 as the Lease Boundary does not intersect a major river or other perennial stream.
CA Goal 3 Policy 1: Use the CAO, SMP, SEPA, and other ordinances, as applicable, to designate and protect critical areas and the natural environment.	The Project is consistent with CA Goal 3 Policy 1 as EFSEC is preparing a SEPA EIS that includes Applicant commitments and mitigation strategies that address potential impacts on critical areas.

Table 3.8-1A: Benton County Comprehensive Plan Update Goals and Policies Consistency Analysis

Element Goal / Policy	Analysis
CA Goal 5: Achieve balance among economic uses of land and critical areas protection.	The Project is consistent with CA Goal 5 as the Project's micrositing corridors are designed to avoid, where possible, Benton County's designated critical areas within the Project Lease Boundary. Where critical areas cannot be avoided, the Applicant proposes minimization and mitigation measures to protect critical areas functions and values.
CA Goal 5 Policy 1: Work with state, federal, and local agencies and other County stakeholders regarding the application of environmental protection laws and regulations.	The Project is consistent with CA Goal 5 Policy 1 as EFSEC is preparing a SEPA-compliant EIS.
ED Goal 2: Expand employment opportunities in unincorporated Benton County.	The Project is consistent with ED Goal 2 as it would have beneficial direct, indirect, and induced economic impacts within unincorporated Benton County for the construction, operation, and decommissioning stages.
ED Goal 3: Provide areas for the location of light and environmentally acceptable heavy industrial uses, while minimizing impacts on surrounding rural uses.	The Project is consistent with ED Goal 3 as it would allow for continued agricultural activities within portions of the Lease Boundary.
ED Goal 3 Policy 2: Do not locate non-agricultural related industry on "GMA Agriculture" designated land.	The Project may not be in alignment with ED Goal 3 Policy 2; however, as currently designed, it would allow for continued agricultural activities within portions of the Lease Boundary.
PL Goal 3: Conserve visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the ice age floods.	The Project is consistent with PL Goal 3 as it would not affect the prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape associated with the ice age floods.
PL Goal 3 Policy 1: Identify and preserve historically significant structures and sites whenever feasible.	The Project is consistent with PL Goal 3 Policy 1 as the Applicant's ASC documents archaeological and architectural surveys of the affected environment and states that the Project would be designed to avoid historically significant structures and sites.
PL Goal 4: Preserve significant historic structures, districts, and cultural resources that are unique to Benton County.	The Project is intended to be in alignment with PL Goal 4 as the Applicant's ASC documents archaeological and architectural surveys of the affected environment and states that the Project would be designed to avoid historically significant structures and sites. However, as some information remains unknown, the possibility to be inconsistent with PL Goal 4 exists.
PL Goal 4 Policy 1: Coordinate with local tribes to protect historic and cultural resources.	The Project is consistent with PL Goal 4 Policy 1 as the Applicant's ASC provides documentation of tribal discussions.
PL Goal 4 Policy 2: Preserve archaeologically significant sites by siting and designing development to avoid or mitigate impacts.	The Project is consistent with PL Goal 4 Policy 2 as the Applicant's ASC documents archaeological surveys of the affected environment and states that the Project would be designed to avoid historically significant structures and sites.

Table 3.8-1A: Benton County Comprehensive Plan Update Goals and Policies Consistency Analysis

Element Goal / Policy	Analysis
PL Goal 5: Identify, preserve, and protect historic, cultural, and archaeological resources found to be significant by recognized local, state, tribal or federal processes.	The Project is intended to be in alignment with PL Goal 5 as the Applicant's ASC documents archaeological and architectural surveys of the affected environment and states that the Project would be designed to avoid historically significant structures and sites. However, as some information remains unknown, the possibility to be inconsistent with PL Goal 5 exists.
PL Goal 5 Policy 1: Identify known, recorded archaeological, cultural, and historic resources.	The Project is intended to be in alignment with PL Goal 5 Policy 1 as the Applicant's ASC documents archaeological and architectural surveys of the affected environment and states that the Project would be designed to avoid historically significant structures and sites.
PL Goal 5 Policy 4: Prior to demolition, moving, or alteration to any designated historic, cultural, and archaeological landmark, ensure that due consideration is given to its preservation or, at a minimum, documentation of its historic, cultural, or archaeological value.	The Project is intended to be in alignment with PL Goal 5 Policy 4 as the Applicant's ASC documents archaeological and architectural surveys of the affected environment and states that the Project would be designed to avoid historically significant structures and sites.
UE Goal 2: Maintain public and private household water and sewer systems that are consistent with the rural character of the County.	The Project is consistent with UE Goal 2 as the Applicant's ASC states that water from the City of Kennewick's water system would be hauled to the site. Additionally, the Applicant's ASC states that the Project would discharge wastewater from the O&M facilities to an on-site septic system.
UE Goal 3: Facilitate efficiency in utility land use and development.	The Project is consistent with UE Goal 3 as the majority of the proposed transmission line route occurs on private property, where ongoing agricultural activity would occur along the corridors.
UE Goal 3 Policy 2: Encourage multiple uses, including passive recreational use, in utility corridors where practical.	The Project is consistent with UE Goal 3 Policy 2 as passive recreational uses within the proposed transmission line corridor would be possible on DNR land where practical. Additionally, the right-of-way for the transmission line would not be fenced.
UE Goal 3 Policy 3: Facilitate maintenance and rehabilitation of existing utility systems and facilities and encourage the use of existing transmission/distribution corridors.	The Project is consistent with UE Goal 3 Policy 3 as the transmission line connecting the Project's substations within the Project Lease Boundary would traverse parcels to optimize the most direct route between substations while minimizing potential environmental and agricultural impacts on surrounding lands. The eastern Project substation has been located adjacent to BPA's proposed Bofer Canyon substation, thereby eliminating the need for new transmission lines at this location. Proposed transmission lines would be located adjacent and parallel to existing public road right-of-way where possible.

Sources: Benton County 2020; Horse Heaven Wind Farm, LLC 2022
Applicant = Horse Heaven Wind Farm, LLC; ASC = Application for Site Certificate; BCC = Benton County Code; BPA = Bonneville Power Administration; CA = Critical Areas; CAO = Critical Areas Ordinance; DNR = Washington State Department of Natural Resources; ED = Economic Development; EIS = environmental impact statement; GMA = Growth Management Act; LU = Land Use; NR = Natural Resources; O&M = operations and maintenance; PL = Parks, Recreation, Open Space, and Historic Preservation; SEPA = Washington State Environmental Policy Act; SMP = Shoreline Master Program; UE = Utilities Element; UGA = Urban Growth Area; WR = Water Resources

Consistency Analysis – Benton County Code (Zoning Ordinance)

Areas within Benton County that maintain critical agricultural resources are zoned in accordance with Benton County Code (BCC) 11.17.030, GMA Agricultural District. These areas are officially demarcated on the Official Zoning Map of Benton County and in the Benton County Comprehensive Plan (see Section 3.8).

Under the version of BCC 11.17.070 that was in effect when the ASC was filed with EFSEC, wind farms, major solar-generating facilities, and ancillary buildings and structures may be permitted within a GMA Agricultural District with approval of a conditional use permit. For any aspects of the Project's design that are not in alignment with BCC 11.17.070 Growth Management Act Agricultural District (as in effect at the time of application), EFSEC may consider in the adjudication whether inconsistent provisions should be preempted, and if so, whether any conditions should be included to serve the purpose of such provisions.

Table 3.8-2A presents the 2019 BCC requirements for the development of a commercial wind farm on land zoned GMA Agricultural District, as well as a consistency analysis between the Project and the ordinance requirement. The 2019 BCC requirements were the applicable county code at the time the Applicant submitted the ASC for the Project.

Table 3.8-2A: 2019[1] Benton County Zoning Ordinance Consistency Analysis

Ordinance Requirement	Consistency Analysis
11.17.070(t)(1). The lowest point on all rotor blades must be at least thirty (30) feet above ground level;	The Project is consistent with BCC 11.17.070(t)(1). The lowest point on the proposed turbine rotor blades would be 36.5 feet above ground level.
11.17.070(t)(2). All wind turbine tower bases must be set back from all dwellings not located on the same parcel at least one thousand (1,000) feet;	The Project is consistent with BCC 11.17.070(t)(2). The ASC states that each turbine tower base would be set back a conservative distance of at least 1,250 feet from all dwellings not located on the same parcel.
11.17.070(t)(3). All wind turbine tower bases must be set back from all property lines a distance equal to the associated wind turbine height, except that, where contiguous properties are leased for an identical duration for development of a wind farm, the tower bases set back from the property lines common with such leased properties may be eliminated so long as no part of any wind turbine extends past any such interior property lines and the above-required setbacks are maintained from the property lines comprising the exterior boundaries of the wind farm;	The Project is consistent with BCC 11.17.070(t)(3). The ASC states, "each turbine tower base is set back at least 499 feet or 671 feet from exterior property lines, depending on Turbine model." Additionally, the ASC states that "Turbine tower bases are set back at least 280 feet from contiguous properties under lease for the Project." This distance is greater than the maximum blade tip length of 278.5 feet. This indicates that no part of a wind turbine under Option 1 and Option 2 would extend past any interior property lines for parcels included in the Project.
11.17.070(t)(4). All wind turbine tower bases must be set back from the closest edge of a state, county, or city road right-of-way a distance equal to the wind turbine height;	The Project is consistent with BCC 11.17.070(t)(4). The ASC states that each turbine tower base set back at least 650 feet or 671 feet from the closest edge of any state and county road right-of-way within the Lease Boundary. This distance is equal to or greater than the proposed wind turbine height for Turbine Option 1 and Turbine Option 2.

[1] The 2019 Benton County Code included ordinance 11.17.070 as updated on 12/20/18. The 2019 Benton County Code was the applicable version at the time of the ASC submittal on February 8, 2021.

Table 3.8-2A: 2019[1] Benton County Zoning Ordinance Consistency Analysis

Ordinance Requirement	Consistency Analysis
11.17.070(t)(5). All wind turbine tower bases must be set back a distance equal to the wind turbine height from all borders of the GMA Agricultural District, except for GMA Agricultural District borders adjacent to the Hanford Reservation owned by the Department of Energy or adjacent to another zoning district adopted by another county that contains a general minimum parcel size of at least twenty (20) acres per parcel;	The Project is consistent with BCC 11.17.070(t)(5). The ASC states that each turbine tower base is set back at least 499 feet or 671 feet from exterior property lines, including borders of the GMA Agricultural District. This distance is equal to or greater than the proposed wind turbine height for Turbine Option 1 and Turbine Option 2. The Project would not be adjacent to the Hanford Reservation or another county.
11.17.070(t)(6). For wind turbine(s) proposed to be located within four (4) miles of the nearest point of the nearest runway of the nearest airport available for public use, the applicant for a building permit must comply with all the requirements imposed by the Federal Aviation Administration (FAA) and provide a written statement from the FAA that sets forth the FAA's comments and requirements, if any, for the proposal;	The Project is consistent with BCC 11.17.070(t)(6). No turbine locations are proposed within 4 miles of the nearest point of the nearest runway of the nearest airport available for public use, which is the Tri-Cities Airport. The nearest turbine would be located approximately 9.9 miles south of the Tri-Cities Airport.
11.17.070(t)(7). All wind turbine(s) must comply with the Federal Aviation Regulations Part 77, Objects Affecting Navigable Airspace, as currently in effect or as hereafter amended, including but not limited to, providing such notices to the FAA as required thereunder and compliance with all requirements or prohibitions imposed by the FAA on the applicant's proposal;	The Project is consistent with BCC 11.17.070(t)(7). Per FAA regulations, the Project would provide a Notice of Proposed Construction or Alteration to the FAA and obtain a Determination of No Hazard prior to construction.
11.17.070(t)(8). Conditional use permit applications for the placement and operation of wind turbines under this section shall be made available for review by the United States Department of Defense (USDOD) in accordance with RCW 36.01.320, as in effect now or hereafter amended. The notice and processing of wind turbine permit applications will be in accordance with Benton County Code chapter 17.10. Pursuant to BCC 11.50.040 (d), the applicant is required to provide sufficient evidence to persuade the Hearings Examiner that the proposed wind turbine is compatible with other uses in the surrounding area, including any military training activities, or is no more incompatible than are any other outright permitted uses in the applicable zoning district, as well as provide all other evidence required by BCC 11.50.040;	The Project is consistent with BCC 11.17.070(t)(8). The Project layout avoids military training areas and would not interfere with military training activities.
11.17.070(t)(9). All wind turbine tower bases shall be located at least forty (40) feet for every one (1) foot of tower height or one mile, whichever is greater, from the ends of and at least five thousand (5,000) feet from the sides of all runways which are available solely for private use and identified on the most current edition of the Sectional Aeronautical Charts produced by the National Aeronautical Charting Office (NACO);	The Project is consistent with BCC 11.17.070(t)(9). The Project has been designed to locate turbines over 5,000 feet from the sides of all private runways identified on the most current edition of the Sectional Aeronautical Charts. Coopers Landing is the nearest runway available solely for private use and is located approximately 2 miles northeast of the Project's nearest turbine tower base. The private runway at Coopers Landing runs east to west. Based on this heading, no turbine under Option 1 or 2 would occur within 40 feet for every 1 foot of tower height from the ends of the runway, which is measured at 3.8 and 5.1 miles, respectively.

Table 3.8-2A: 2019[1] Benton County Zoning Ordinance Consistency Analysis

Ordinance Requirement	Consistency Analysis
11.17.070(t)(10). If the use of any wind turbine or wind turbine farm is discontinued for a period of one (1) year or more, the owner of such facility shall remove the facility within ninety (90) days of written notification by the Planning Department. If such facility is not removed within said ninety (90) days, the County may refer the issue to the code enforcement officer for appropriate action pursuant to Chapter 11.43 BCC;	The Project is consistent with BCC 11.17.070(t)(10). The Project is expected to have an operational life of 35 years, upon the completion of which all wind turbines will be removed prior to reaching the one year and ninety days deadline following the end of operations as outlined here.
11.17.070(t)(11). The wind turbine(s) and all associated service roads may not displace more than five (5) percent of the area of that parcel(s) on which they are located.	Consistency with BCC 11.17.070(t)(11) would be based on the Project's impact on each parcel that makes up the Lease Boundary. Permanent disturbances associated with turbine tower foundation pedestals and permanent disturbances associated with the Project's new 16-foot-wide access roads would not displace more than 5% of the parcel area on which they are located.

Source: Benton County 2019; Horse Heaven Wind Farm, LLC 2022
Notes:
ASC = Application for Site Certification; BCC = Benton County Code; FAA = Federal Aviation Administration; GMA = Growth Management Act; NACO = National Aeronautical Charting Office; RCW = Revised Code of Washington; USDOD = U.S. Department of Defense

Table 3.8-3A presents the five requirements under BCC 11.50.040(d) for when a conditional use permit may be issued by Benton County and responses based on existing conditions and Project information.

Table 3.8-3A: Benton County Conditional Use Permit Requirements and Project Analysis

Conditional Use Permit Requirement	Project Comparison
(a) Is compatible with other uses in the surrounding area or is no more incompatible than are any other outright permitted uses in the applicable zoning district.	Nine Canyon Wind Farm received a permit from Benton County that allowed it to be constructed on Growth Management Act Agricultural District zoned land, which indicates that the Project is not any less compatible than what has previously been permitted within the applicable zoning district.
(b) Will not materially endanger the health, safety, and welfare of the surrounding community to an extent greater than that associated with any other permitted uses in the applicable zoning district.	An analysis of Public Health and Safety is provided in Section 4.13.
(c) Would not cause the pedestrian and vehicular traffic associated with the use to conflict with existing and anticipated traffic in the neighborhood to an extent greater than that associated with any other permitted uses in the applicable zoning district.	An analysis of recreation and traffic is provided in Sections 4.12 and 4.14, respectively.
(d) Will be supported by adequate service facilities and would not adversely affect public services to the surrounding area.	An analysis of public services and utilities is provided in Section 4.15.

Conditional Use Permit Requirement	Project Comparison
(e) Would not hinder or discourage the development of permitted uses on neighboring properties in the applicable zoning district as a result of the location, size or height of the buildings, structures, walls, or required fences or screening vegetation to a greater extent than other permitted uses in the applicable zoning district.	An analysis of Project impacts on land use is provided in Section 4.8. The adjudication process for the Project would allow interested parties, including neighbors, to participate in the Project's review process. Through this process, conditions may be placed on the Project's construction and operation that address issues involving development of permitted uses on neighboring properties.

References

Benton County. 2019. Codes, Plans and Policies – Chapter 11 Zoning. Note: At the time of the ASC's submittal in February 2021, the 2019 update to Chapter 11 presented the applicable setback distances.

Benton County. 2020. 2017 Benton County Comprehensive Plan, Adopted February 13, 2018, Updated January 2020. Accessed October 16, 2023. https://www.co.benton.wa.us/files/documents/2017ComprehensivePlandJanuary20201290555480616 20PM.pdf.

Horse Heaven Wind Farm, LLC. 2022. Horse Heaven Wind Farm Washington Energy Facility Site Evaluation Council Updated Application for Site Certification EFSEC Docket Number: EF-210011. February 2021, Revised December 2022.

APPENDIX 3.10-1

Sky Glow Information and Comparisons

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Sky Glow Information and Comparisons

The earliest measures of sky glow, also called sky brightness, were based on a scale upon which the magnitude of stars visible to the human eye is divided into six levels. The brightest star is a magnitude 1, and the dimmest (faintest) star is a magnitude 6. More recently, the magnitude scale was modified to express astronomical surface brightness (stars, planets, etc.) in units known as magnitudes per square arcsecond (mag/arcsec2) as measured by a Sky Quality Meter (SQM). The measurement scale is inverse and logarithmic and is generally used in small area photometry and astronomy (Bortle 2001).

Sky Glow Comparison Table

Class	Title	Approx. SQM mag/arcsec2
1	Excellent dark-sky site	21.7–22.0
2	Typical truly dark site	21.5–21.7
3	Rural sky	21.3–21.5
4	Rural/suburban transition	20.4–21.3
5	Suburban sky	19.1–20.4
6	Bright suburban sky	18.0–19.1
7	Suburban/urban transition	
8	City sky	< 18.0
9	Inner-city Sky	

Source: Bortle, John E. 2001. Gauging Light Pollution: The Bortle Dark-Sky Scale. Sky & Telescope. Sky Publishing Corporation. Accessed May 29, 2020. https://skyandtelescope.org/astronomy-resources/light-pollution-and-astronomy-the-bortle-dark-sky-scale/.
mag/arcsec^2 = magnitudes per square arcsecond; SQM = Sky Quality Meter

Examples of Typical Illuminance and Apparent Magnitude

Location	Classification	Illuminance[(a)] (lux)	Sky Brightness[(b)] (mag/arcsec^2)
Outdoor	Bright Sun	100,000–130,000	>0.1
	Hazy Day	32,000	1.3
	Partly Cloudy	25,000	1.6
	Cloudy	10,000	2.6
	Overcast	1,000	5.1
	Sunrise/Sunset on Clear Day	400	6.1
	Full Moon	0.1	15.1
	Moonless Clear Night Sky	0.001	20.1
	Moonless Overcast Night Sky	0.0001	22.6
	Starlight	0.00005	23.3

Examples of Typical Illuminance and Apparent Magnitude

Location	Classification	Illuminance[(a)] (lux)	Sky Brightness[(b)] (mag/arcsec^2)
Indoor	Typical TV Studio	1,000	5.1
	Bright Office with Large Contrast	400	6.1
	Hall Way	80	7.8
	Living Room	50	8.3
	Good Street Lighting	20	9.3
	Poor Street Lighting	1	12.6

Notes:
(a) G. R. Elion and H. A. Elion, 1979. Electro-Optics Handbook. CRC Press.
(b) Calculated based on conversion from lux to mags/arcsec^2
mag/arcsec^2 = magnitudes per square arcsecond; lux = luminous flux per unit area

APPENDIX 3.10-2

SWCA 2023 Visual Impact Assessment Report

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Updated Horse Heaven Wind Farm Project
Final Visual Impact Assessment Report

JULY 2023

PREPARED FOR

Washington Energy Facility Site Evaluation Council (EFSEC)

PREPARED BY

SWCA Environmental Consultants

UPDATED HORSE HEAVEN WIND FARM PROJECT
FINAL VISUAL IMPACT ASSESSMENT REPORT

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July 2023

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1 INTRODUCTION

In February 2021, the Washington Energy Facility Site Evaluation Council (EFSEC) received an Application for Site Certification (ASC) from Horse Heaven Wind Farm, LLC (the Applicant) proposing the construction and operation of the Horse Heaven Wind Farm Project (Project or Proposed Action). The ASC proposes the construction of a renewable energy generation facility that would have a nameplate energy generating capacity of up to 1,150 megawatts for a combination of wind and solar facilities as well as battery energy storage systems (BESSs). The 72,428-acre Lease Boundary is located on the Horse Heaven Hills south of Richland, Kennewick, and Benton City and is comprised mostly of private lands with some Washington Department of Natural Resources state trust parcels. The Project design includes the following components:

- Two wind turbine layout options
- Three potential solar array siting areas
- Up to five substations and associated transmission lines
- Three potential BESS locations
- An operation and maintenance (O&M) facility
- Other Project supporting infrastructure as depicted in Figures 1 and 2 in Attachment A

Additional details regarding the Project design are located in the Updated Project ASC (Horse Heaven Wind Farm, LLC 2022).[1]

The purpose of this report is to assist in EFSEC's determination of potential Project impacts under the Washington State Environmental Policy Act (SEPA), including significant unavoidable adverse impacts. Specifically, the report focuses on potential visual impacts resulting from modification of the landscape as well as the response of viewers to those features. Additionally, this report analyzes whether the Project would be consistent with and comply with state and local visual resource guidance. The information contained in this report was provided by the Applicant and supplemented with publicly available data where necessary. No additional fieldwork or simulations (beyond those provided in the ASC) were completed.

2 REGULATORY FRAMEWORK

The EFSEC process does not require a particular visual resource analysis method to be used. Instead, the goal is to describe the aesthetic impact of the proposed Project, provide the location and design of the facilities, depict how the Project will appear relative to the surrounding landscape, and describe procedures to restore or enhance the landscape disturbed during construction.

Both Washington State and the Benton County Comprehensive Plan provide guidance with regard to visual resources. As part of the EFSEC process, Washington Administrative Code 463-60-362(3) identifies the following standard for analysis of visual resource (aesthetics).

- The application shall describe the aesthetic impact of the proposed energy facility and associated facilities and any alteration of the surrounding terrain. The presentation will show the location and design of the facilities relative to the physical features of the site in a way that will show how

[1] The ASC can be viewed at the following website: Horse Heaven Application | EFSEC - The State of Washington Energy Facility Site Evaluation Council.

the installation will appear relative to its surroundings. The applicant shall describe the procedures to be utilized to restore or enhance the landscape disturbed during construction (to include temporary roads).

Benton County has adopted planning goals and policies in their Comprehensive Plan (Benton County 2022) to conserve areas of potential value to the county and its residents. The following planning goals and policies noted below are most applicable to this visual analysis:

- Public Lands designation Goal 3: Conserve visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape and are uniquely a product of the ice age floods.
- Policy 3: Pursue a variety of means and mechanisms such as the preparation of specific and area plans, conservation easements, clustered developments, land acquisitions and trades, statutory requirements to protect the natural landform and vegetative cover of the Rattlesnake uplift formation, notably Rattlesnake, Red, Candy, and Badger Mountains and the Horse Heaven Hills.
- Policy 4: Consider the preservation of the ridges and hillside areas through various development regulations.

These county goals and policies provide the intentions and interests of Benton County, rather than providing specific compliance requirements for this Project. No other federal, state, or local visual management requirements were identified for Project compliance.

The February 2021 Project ASC included a visual inventory and analysis within Section 4.2.3 (Horse Heaven Wind Farm, LLC 2021a), with an additional report submitted in October 2021 titled *Aesthetics Technical Memorandum for the Horse Heaven Wind Farm Project* (Horse Heaven Wind Farm, LLC 2021b). In December 2022, the Project ASC was updated, including Section 4.2.3 and associated visual simulations (Horse Heaven Wind Farm, LLC 2022). The updated ASC, serving as the Applicant's visual analysis, focused mostly on the Visual Resource Management (VRM) System from the Bureau of Land Management (BLM), which has become an industry standard to analyze potential visual impacts, particularly in the western United States, and is often applied to projects on non-BLM lands. The BLM VRM as well as other federal agency visual resource methodologies (e.g., U.S. Forest Service scenery management system and U.S. Federal Highway Administration Guidelines for the Visual Impact Assessment of Highway Projects) have three common elements. These include:

- Scenery: continuous units of land comprised of harmonized features that result in and exhibit a particular character,
- Views (sensitivity to visual change and visibility): public viewing locations including recreation areas, travel routes, residences, and lands with special management where viewers have sensitivity to landscape changes, and
- Agency visual management requirements: which identify allowable levels of change to landscape character and the allowable degree of attention the project could attract from viewing locations.

The application of the BLM VRM system in the Applicant's visual analysis document (Horse Heaven Wind Farm, LLC 2022) did not include some elements typically required, including the completion of contrast rating worksheets from key viewpoints or consideration of all 10 BLM contrast factors. Of these 10 factors, the Applicant's visual analysis did not address the effect of motion and its influence on both landscape character and views. This report builds on the BLM VRM analysis provided in the ASC, including the effects of motion, and incorporates elements from *A Visual Impact Assessment Process for Wind Energy Projects* from the Clean Energy States Alliance (CESA) (CESA 2011) to evaluate and

address the unique visual characteristics of wind energy projects. These combined methods are described further in Section 3 of this report.

3 AFFECTED ENVIRONMENT

To describe the Project's affected environment, this section outlines the inventory methods, describes the existing landscape character, and identifies potential viewing locations.

3.1 Inventory Methods

The visual resource area of analysis was identified in the ASC as the area within 10 miles of the proposed wind turbines and transmission line and within 5 miles of the proposed solar arrays, substations, and BESSs. Based on guidance from both the BLM (Sullivan et al. 2012) and CESA (2011), the area of analysis for the wind turbines was extended to 25 miles.

The visual resource inventory and impact assessment focused on three elements: landscape character, viewing locations, and compliance with state and county visual management guidance. These concepts are included both in the BLM VRM system and CESA process to identify potential impacts on visual resources. The methods for determining landscape character and viewing locations are described in the subsequent sections. Compliance with state and county visual management guidance (Section 2) is addressed in Section 4.2.2.6.

3.2 Existing Landscape Character

The term landscape character is used to describe the overall visual appearance of a given landscape, based on the visual aspects of the landscape's vegetation, landforms/water, and human-made modifications. Landscape character is often described in terms of landscape character areas, which are portions of a larger landscape that share harmonizing features that result in and exhibit a particular visual character.

The Project is located within the Columbia Plateau U.S. Environmental Protection Agency (EPA) Level III ecoregion (EPA 2010), which is typically characterized by a broad expanse of sagebrush-covered volcanic plains and valleys adjacent to the Columbia River and dotted with isolated mountains. There are landscape features in the area of analysis associated with a series of cataclysmic floods that occurred at the end of the most recent ice age, when glacially dammed lakes ruptured and large volumes of water rushed through the northwestern United States (National Park Service 2014).

The Lease Boundary is primarily characterized by the following features:

- Flat to rolling panoramic landscapes comprised of arid sagebrush steppe and grasslands that have been partially converted to agricultural lands.
- Topography gently slopes from north to south with a distinctive ridge located north of the Lease Boundary that connects the elevated sagebrush steppe to the Columbia River Valley.
- There are a series of minor drainageways that dissect the landscape with some forming small canyon settings.
- Due to the arid climate, there are limited trees within the Lease Boundary. Most trees visible in the Lease Boundary are associated with ornamental landscaping and windbreaks adjacent to residences, with the primary vegetation communities being agricultural lands with areas of remnant sagebrush steppe and grassland.

- Vegetation color in agricultural areas ranges from green to tan and brown depending on the season and the crop being grown. More vivid colors occur along the Columbia River Valley associated with residential, commercial, and agricultural development that contrasts with the arid, muted colors found within the Lease Boundary.

The inventory of existing landscape character, based on CESA guidance, also considered the intactness of the landscape. This relates to the extent of modifications present in the existing landscape and their overall effect on natural patterns, which define the landscape. These modifications have the potential to create unintended focal points contrasting with the natural landscape character. There are three main landscape character areas that define the Lease Boundary's landscape character:

- **Plateau lands west of I-82:** The arid, rolling plateau lands west of the interstate are mostly intact with limited existing utility or other industrial uses. An existing transmission line traverses the western edge of the Lease Boundary, influencing the adjacent setting. There are also residences dispersed across this rural agricultural landscape, introducing geometric structures and additional vegetation in the setting associated with wind breaks and ornamental landscaping. The juxtaposition of residences and agricultural lands, including barns and other structures, create an agrarian landscape character common to the region.
- **Plateau lands east of I-82:** The landscape east of the interstate is similar to the western area but includes a series of wind turbine strings associated with the existing Nine Canyon Wind Project. There is also an existing transmission line that crosses the Lease Boundary near the west side of the existing Nine Canyon Wind Project and along the southern edge of the Lease Boundary adjacent to I-82. The influence of the existing landscape modifications extends throughout this landscape, reducing its level of intactness. The tall vertical form of the existing wind turbines and their movement attract attention within the setting, generally dominating the local landscape character.
- **Ridgeline:** This landscape is most prominent east of I-82 but continues to the west as a connection between the flat lands adjacent to the Columbia River and the elevated steppe lands. Due to the steep terrain, this area is visually prominent as viewed from the communities located north of the Lease Boundary. There are multiple paragliding launch sites along the ridge including Jump Off Joe, M&M Ridge, and Kiona. Additionally, there are two strings of the existing Nine Canyon Wind Project sited along the ridge and a communication tower, which reduce the intactness of the setting east of I-82.

3.3 Viewing Locations and Key Observation Points

While landscape character is focused on the visual characteristics of the overall landscape regardless of specific viewing locations, visibility of the Project from typical or sensitive viewing locations represent the most critical places from which the public would view the Project. These are commonly referred to as key observation points, or KOPs, and establish the platforms where impacts on views are assessed. KOP locations include static locations, such as residential areas, where views would occur from a consistent location, as well as linear KOPs, such as travel ways, where views change based on moving along a road or trail with varying potential impact levels.

In order to identify these KOP locations, a series of bare-earth viewshed analyses were run to depict the visibility of the Project from the surrounding area. The bare-earth modeling approach used in the viewshed analysis does not account for screening effects from vegetation or buildings that could block or partially block some views. In this manner, the bare-earth viewshed approach results in a conservative assessment of potential Project visibility. The analysis in the ASC included six viewsheds to compare visibility of the two turbine layout options, identify visibility of the three solar array siting areas, and

provide visibility of the proposed transmission lines (Horse Heaven Wind Farm, LLC 2022). These viewsheds were run out to the different areas of analysis associated with each of the Project components as described in Section 3.1. Based on the expansion of the area of analysis for the wind turbines from 10 miles to 25 miles, the viewsheds associated with the two turbine layout options were updated for this report to include this larger, regional setting. See Figures 3 through 8 in Attachment A for the results of these viewshed analyses.

Within the Applicant's visual resources area of analysis, results of the viewshed analyses and aerial photography were used to identify possible residential structures, travel ways, cultural resources with visual aspects, recreation, and other areas of interest including open space areas, to identify potential KOPs. These KOPs represent critical viewpoints, typical views in representative landscapes, and views of any special Project features. Additionally, the Applicant sought input from Benton County to identify potential areas of interest to local community members. Benton County noted interest on the part of residents located north of the Project. This area of interest contains a large number of residences as well as a series of parks and other recreation areas. The resulting list of potential KOPs were visited and photographed, and a series of KOPs were identified for analysis to represent the range of viewers and locations that would have views of the proposed Project infrastructure. In addition to these Applicant-selected KOP locations, supplementary viewing locations were considered to represent views from dispersed residences located directly adjacent to the proposed wind turbines and views from Horse Heaven Hills, a BLM-managed dispersed recreation area (BLM 2022).

Viewer reactions to changes in the landscape (viewer sensitivity) can vary depending on the characteristics and preferences of the viewer group. For example, residential viewers are typically expected to have a high concern for changes in views from their residences. These preferences may also vary depending on if the residential viewer is a Project participant or if views are from a non-participating property. Motorists' concern generally depends on when and where travel occurs, and the type of travel involved (e.g., commuting vs. recreational travel). Recreation users' concern for changes in views varies based on the activities occurring and how long viewers would have to analyze the landscape (view duration). For example, viewers at a scenic overlook are expected to have a higher concern for changes in view, where the landscape would be viewed for a long duration and is integral to its use, compared to motorists on a non-scenic designated highway, in which landscape is viewed for a shorter duration and is not necessarily the focus of the viewer's activity.

The types of users in the visual study areas include residents of the adjacent Tri-Cities communities, including Benton City, Burbank, Kennewick, Pasco, Richland, West Richland, Finley, and Prosser; travelers on the various interstates and highways; recreators visiting the Rattlesnake, Red, Candy, and Badger mountains, McNary National Wildlife Refuge, and other recreational facilities in the area. Lands within the Lease Boundary are also of interest to the Confederated Tribes and Bands of the Yakama Nation, Confederated Tribes of the Umatilla Indian Reservation, and Nez Perce Tribe, who may attach cultural significance to natural landscape components.

The distance from the Project is a key factor in determining potential visual effects, with the amount of perceived contrast generally diminishing as distance between the viewer and the affected area increases (BLM 1986). Contrast is defined as the level of visible change to the existing features of the landscape (including landform/water, vegetation, and human-made structures) resulting from the introduction of a proposed project or management activity. The BLM VRM system and other visual resource systems establish a series of distance zones to identify visibility thresholds and inventory the existing landscape. For the purposes of this study, the distance to the Project (in miles) was used to identify viewing distance, with a particular focus on the foreground distance zone. This area corresponds to the area within 0.5 mile of the Project, where views of modifications in the landscape would be most prominent leading to views potentially dominated by Project infrastructure.

The list of viewing locations and KOPs used in this analysis as well as the associated viewer type, viewer sensitivity, and distance to the Project are presented in Table 1 and depicted on Figure 9 in Attachment A.

Table 1. Key Observation Point Locations Table

KOP Number	Viewer Name	Viewer Type	Viewer Sensitivity	Distance to Project	Description
1	McNary National Wildlife Refuge (NWR)	Recreation	Moderate	5.2 miles (wind turbines) Solar arrays, transmission lines, and substations/ BESSs would not be visible from this location.	Viewpoint is located along an unpaved road within the McNary NWR, looking southwest across the Columbia River towards the Project Lease Boundary.
2	S Clodfelter Road – East, Central, and West	Residential	High	3.0 miles (wind turbines) 3.4 miles (transmission line) Solar arrays and substations/BESSs would not be visible from this location.	Viewpoint is located along the south side of Manuel Drive, toward S. Clodfelter Road, looking southeast to southwest.
3	Chandler Butte	Recreation	High	2.5 miles (wind turbines) 2.1 miles (solar array) 4.2 miles (transmission line) The substations/BESSs would be visible from this location but would be outside of the photo frame.	Viewpoint is located along the unpaved road east of the communication towers, looking southeast.
4	I-82 South	Travel route	Moderate	7.0 miles (wind turbines) 6.0 miles (solar array) 6.5 miles (transmission line) The HH-East Substation/ BESSs would be visible from this location.	Viewpoint is located along the right shoulder of the highway, looking northwest to northeast.
5	Badger Mountain	Recreation	High	4.7 miles (wind turbines) Solar arrays, transmission lines, and substations/ BESSs would not be visible from this location.	Viewpoint is located along the southern side of the top of Badger Mountain looking southwest.
6	Bofer Canyon Road/I-82	Travel route	Moderate	1.7 miles (wind turbines) 0.6 mile (solar array) 1.2 miles (transmission line) The HH-East Substation/ BESSs would be visible from this location but would be outside of the photo frame.	Viewpoint is located along the right shoulder of the road, looking north.
7	Highway 221	Travel route, residential	High	5.8 miles (wind turbines) 3.1 miles (solar array) 2.2 miles (transmission line) The HH-West Substation/ BESSs would be visible from this location.	Viewpoint is located along the right shoulder of the highway, looking northeast.

KOP Number	Viewer Name	Viewer Type	Viewer Sensitivity	Distance to Project	Description
8	Kennewick (Canyon Lakes Area) – South and West	Residential	High	3.6 miles (wind turbines) 5.9 miles (solar array) 7.4 miles (transmission line) The substations/BESSs would not be visible from this location.	Viewpoint is located on the southwest end of S. Olson Street, looking west to south.
9	Benton City	Residential, travel route, commercial	High	2.7 miles (wind turbines) 3.9 miles (solar array) 5.5 miles (transmission line) The substations/BESSs would not be visible from this location.	Viewpoint is located on the east side of Division Street/State Route 225, looking south.
10	Badger Road	Residential, travel route	High	1.5 miles (wind turbines) 6.4 miles (solar array) 4.3 miles (transmission line) The substations/BESSs would not be visible from this location.	Viewpoint is located on the north side of Badger Road, looking southwest.
11	Highland/Finley Area	Residential	High	2.0 miles (wind turbines) 8.5 miles (solar array) 8.7 miles (transmission line) The substations/BESSs would not be visible from this location.	Viewpoint is located on the north side of E. Cougar Road near an entrance driveway to Finley Elementary School, looking southeast.
12	County Well Road	Residential, travel route	High	2.5 miles (wind turbines) 0.2 mile (solar array) 0.2 mile (transmission line) The HH-West (Alternative) Substation/BESSs would be visible from this location and located 0.5 mile away.	Viewpoint is located on the left shoulder of County Well Road, looking northeast.
13	Travis Road South of Sellards Road	Residential, travel route	High	1.1 miles (wind turbines) 1.0 mile (solar array located outside of photo frame) 0.1 mile (transmission line) The substations/BESSs would not be visible from this location.	Viewpoint is located on the right shoulder of Travis Road, looking north.
14	South of Benton City	Residential	High	1.7 miles (wind turbines) Solar arrays, transmission lines, and substations/ BESSs would not be visible from this location.	Viewpoint is located near Webber Canyon Road and adjacent residences looking southwest to southeast.
15	Interstate 82	Travel route	Moderate	0.7 mile (wind turbines) 0.1 mile (transmission line) 0.1 mile (solar array located outside photo frame) Substations/ BESSs would not be visible from this location.	Viewpoint is located along the left shoulder of the frontage road adjacent to the highway, looking northwest to northeast.

KOP Number	Viewer Name	Viewer Type	Viewer Sensitivity	Distance to Project	Description
16	U.S. Highway 730 – Wallula Gap	Travel route	Moderate	Wind turbines, solar arrays, transmission lines, and substations/ BESSs would not be visible from this location.	Viewpoint is located along the right shoulder of the highway, looking west toward the Wallula Gap
N/A	Dispersed residences located 0.5 mile from proposed turbines (foreground views)	Residential	High	Less than 0.5 mile (wind turbines) The other Project component distances would vary but are more specifically described from other KOP locations.	There are approximately 13 residences located within the foreground distance zone of the proposed wind turbines, less than 0.5 mile, with two of those identified as non-Project participating properties. Additionally, there are numerous residences located within 0.5 to1 mile of the proposed wind turbines.
N/A	Horse Heaven Hills Recreation Area	Recreation	Moderate	0.8 mile (wind turbines) Solar arrays, transmission lines, and substations/ BESSs would not be visible from this location.	Dispersed recreation including opportunities for hiking, nature viewing, and mountain biking with potential views of the Project to the south.

A series of visual simulations were prepared from KOPs 1 through 16, with both wind turbine options depicted, and are included in Attachment B. No simulations were developed from either of the un-numbered KOP viewing locations (e.g., Horse Heaven Hills Recreation Area or dispersed residences within foreground distance zone). Existing condition photographs were taken using standard focal lengths to most closely represent the human field of view. In order to create photographic simulations, a three-dimensional model of the turbine, solar array, and transmission line layouts were placed in the photographic view, taking into consideration Project topography (elevation) and distance from the observation point. Simulated turbines, solar arrays, and transmission lines were aligned to the photographs and the model rendered and composited to create the visualizations. Some of the KOP locations have multiple simulations looking in different directions, such as KOP 2, which includes potential views of the Project to both the southeast and southwest (Horse Heaven Wind Farm, LLC 2022). Visual simulations from KOPs 3, 5, 6, and 7, included in the draft environmental impact statement (EIS), were updated to reduce the effect of atmospheric conditions to best depict Project visibility under exceptionally clear atmospheric conditions. This included taking new photographs from these viewpoints, as well as digitally dehazing and replacing the sky in the existing photographs. The original and edited photographs are provided for each of these representative viewpoints in Attachment B. Additionally, three new KOPs (KOP 14, 15, and 16) with visual simulations were added to the analysis based on public comments on the Project's draft EIS. The existing photographs and visual simulation from KOP 14 were also updated to reduce the effect of atmospheric conditions and to depict Project visibility under exceptionally clear atmospheric conditions.

4 IMPACT ASSESSMENT

4.1 Method of Analysis

The Project visual analysis focuses on three elements: landscape character, viewing locations, and compliance with state and county visual management guidance. The CESA methods suggest three evaluation criteria as they relate to identifying if impacts rise to the magnitude of "undue" or "unreasonable" (CESA 2011):

- Does the project violate a clear written aesthetic standard intended to protect the scenic values or aesthetics of the area or a particular scenic resource?
- Does the project dominate views from highly sensitive viewing areas or within the region as a whole?
- Has the developer failed to take reasonable measures to mitigate the significant or avoidable impacts of the project?

Table 2 outlines the SEPA impact rating factors used for this visual impact assessment, including magnitude, duration, likelihood, and spatial extent of impacts. Table 3, in consideration of BLM and CESA methods, further describes the degrees of magnitude in Table 2 (negligible, low, medium, and high), as they relate to the visual impact analysis elements that form the foundation of this assessment. As identified in Table 3, the determination of impact magnitude is based on impacts to landscape character, impacts to viewing locations, and compliance with state and county visual resource requirements. These determinations are primarily focused on the concept of project contrast, which is a measure of the overall visual changes to existing features of the landscape (including landform/water, vegetation, and human-made structures) resulting from the construction, operation, and decommissioning of a project. The level of project contrast is assessed using the categories of slight, weak, moderate, and strong, which directly align with the magnitude of change degrees of negligible, low, medium, and high.

Other concepts from the CESA methods were included to evaluate and address the unique visual characteristics of wind energy projects. For the assessment of impacts on landscape character, this includes modifications to the existing setting, which may reduce the setting's overall level of intactness. With regard to impacts on views, the concepts of project dominance, prominence with the setting, and the extent of viewshed occupied by the project (i.e., extent of horizontal view occupied by Project) were included from the CESA methods. These concepts build upon the BLM VRM's 10 environmental factors that influence the amount of visual contrast introduced by a project (BLM 1986):

- Distance
- Angle of observation
- Length of time the project is in view
- Relative size or scale
- Season of use
- Lighting conditions
- Recovery time
- Spatial relationships
- Atmospheric conditions
- Motion

Of particular importance for a project with wind turbines is the influence of motion to attract attention and increase the level of visual contrast within view, compared to static elements (e.g., solar arrays, transmission lines).

Table 2. Impact Rating

Factor	Rating			
Magnitude	Negligible *indistinguishable from the background*	Low *Small impact, non-sensitive receptor(s)*	Medium *intermediate impact, may occur on sensitive receptor(s) or affect public health and safety*	High *high impact on sensitive receptor(s) or affecting public health and safety*
Duration	Temporary *infrequently during any phase*	Short-term *duration of construction or site restoration*	Long-term *during operation or operation plus another phase of Project*	Constant *during life of Project and/or beyond the Project*
Likelihood	Unlikely *not expected to occur*	Feasible *may occur*	Probable *expected to occur*	Unavoidable *inevitable*
Spatial Extent/Setting	Limited *small area of Lease Boundary or beyond Lease Boundary if duration is temporary*	Confined *within Lease Boundary*	Local *beyond Lease Boundary to neighboring receptors*	Regional *beyond neighboring receptors*

Table 3. Criteria for Assessing Magnitude of Impacts to Visual Resources

Magnitude of Impacts	Description
Negligible	**Landscape character:** landscape would appear unaltered and Project components would not attract attention. Project components would repeat form, line, color, texture, scale and/or movement common in the landscape and would not be visually evident. **Viewing locations:** contrast introduced by the Project would be slight and would be subordinate to existing landscape features and would not be readily seen from viewing locations. Project components would repeat elements or patterns common in the landscape. **State and county visual resource requirements:** Project would be consistent with state and county visual management requirements.
Low	**Landscape character:** landscape would be noticeably altered, and Project components would begin to attract attention in a partially intact visual setting. Project components would introduce form, line, color, texture, scale, and/or movement common in the landscape and would be visually subordinate (weak contrast). **Viewing locations:** A weak level of contrast would be introduced by the Project. The Project would occupy a small portion of the viewshed, and would be subordinate to existing landscape features, as seen from viewing locations. **State and county visual resource requirements:** Project would be consistent with state and county visual management requirements after implementation of mitigation measures.
Medium	**Landscape character:** landscape would appear to be considerably altered and Project components would begin to dominate a partially intact visual setting. Project components would introduce form, line, color, texture, scale, and/or movement not common in the landscape and would be visually prominent in the landscape (moderate contrast). **Viewing locations:** a moderate level of contrast would be introduced by the Project, attracting attention from viewing locations. The Project would be prominent in the existing landscape and co-dominate from viewing locations where the form, line, color, texture, scale, and/or movement of Project components would be moderately incongruent with existing landscape features. **State and county visual resource requirements:** Project would be partially consistent with state and county visual management requirements, and the implementation of mitigation measures would not sufficiently reduce impacts.

Magnitude of Impacts	Description
High	**Landscape character:** landscape would appear to be strongly altered and Project components would dominate an intact visual setting. Project components would introduce form, line, color, texture, scale, and/or movement not common in the landscape and would be visually dominant in the landscape (strong contrast). **Viewing locations:** a strong level of contrast would be introduced by the Project, demanding attention. The Project would be highly prominent and dominate views from viewing locations where the form, line, color, texture, scale, and/or movement of Project components would be highly incongruent with existing landscape features, including existing structures. A strong level of contrast may also be introduced if the Project components occupy a large portion of the viewshed from a given viewpoint. **State and county visual resource requirements:** Project would be inconsistent with state and county visual management requirements, and the implementation of mitigation measures would not sufficiently reduce impacts.

To support the visual impact discussions, the following visual terminology is used in this report as defined below:

- Viewer position (angle of observation)
  - Inferior: viewer is located below the Project in elevation.
  - Level: viewer is at the same elevation as the Project.
  - Superior: viewer is located above the Project in elevation.
- Project visibility factors
  - Screening: an existing visual barrier (landforms, vegetation, or structures) blocks or limits views of the Project, reducing the level of contrast introduced by the Project.
  - Unobstructed: views of the Project would not be screened by landforms, vegetation, or structures allowing for the extent of the Project to be visible.
  - Skylining: the Project would appear above the horizon or ridgeline, silhouetting its form against the sky attracting additional attention in the landscape.
  - Backdropping: distant hills or mountains would appear behind the Project potentially reducing contrast introduced by its form, line, color, and texture as those elements would appear to blend with the existing setting.

Since impacts on visual resources considered effects on scenery and on views from multiple KOPs, the summary impact level (i.e., magnitude of impact) at the end of each discussion focuses on the highest identified impacts.

4.2 Impacts of Proposed Action

4.2.1 Impacts during Construction

The construction of the Project would introduce form, line, color, texture, scale, and movement inconsistent with the existing landscape character and would modify views from the identified KOP locations. These short-term impacts would result from the construction of Project facilities as well as construction of new access roads and associated vegetation clearing. Because the Applicant has committed to active dust suppression, as described in Section 1.10 Mitigation Measures of the ASC, potential visual impacts associated with visible dust plumes is not considered in this assessment. Impacts associated with Project lighting or glare is considered in the draft EIS for the Project. The following sections describe visual/aesthetic impacts associated with the different Project components.

4.2.1.1 TURBINE OPTION 1

Impacts on visual resources would be elevated during construction activities, including the movement of vehicles that would attract attention, due to increased activity at proposed temporary staging areas and throughout the Lease Boundary. The construction of access roads, crane paths, collector and communication lines, and the wind turbines would be prominent when viewed within the foreground distance zone (0–0.5 mile) and would begin to modify the existing landscape setting.

During construction, the removal of vegetation and earthwork would introduce areas of exposed soil, which would contrast with the existing setting until vegetation is later reclaimed. The construction of access roads in the level to rolling terrain in the analysis area would require minimal modification of the existing terrain, resulting in negligible long-term visual impacts. Impacts common to all KOPs during construction would include views of additional vehicular traffic and areas of exposed soil after the removal of vegetation and during earthwork activities. Viewers located within the foreground distance zone (0–0.5 mile), or in locations where views would be occupied by a large portion of the Project under construction, would result in increased visual contrast on these views.

These impacts would be most intense during the 23-month construction schedule (as described in the ASC and in Chapter 2 of the EIS for the Project) and would diminish after construction is complete and vegetation has been re-established. Following the initial seeding, completed after construction, the Applicant would continue to monitor these revegetation areas for 3 to 5 years and apply remedial actions in order to meet the success criteria outlined in Appendix N of the ASC (Horse Heaven Wind Farm, LLC 2022). Construction activities for Turbine Option 1 would result in medium, short-term, probable, local impacts on visual resources.

4.2.1.2 TURBINE OPTION 2

Impacts would be similar to Turbine Option 1. Because there are fewer proposed wind turbines requiring less ground disturbance for construction, there would be a reduced level of contrast and fewer modifications to the existing landscape character introduced during Project construction when compared to Turbine Option 1. However, the ratings of impacts are consistent between the two turbine options as construction of either option would occupy a large portion of the landscape contrasting with its existing character. Construction activities for Turbine Option 2 would result in medium, short-term, probable, local impacts on visual resources.

4.2.1.3 SOLAR ARRAYS

The construction of the solar arrays would result in similar impacts as the wind turbines but would occur within a smaller, more defined area associated with the selected solar array site. Within the fenced boundary, all lands would be distributed through earthwork, vegetation clearing, and other construction efforts. Application of mitigation measures would reduce these impacts to the extent practicable to minimize these short-term visual impacts as described in Section 4.2.4. Construction activities for the solar arrays would result in low, short-term, probable, local impacts on visual resources.

4.2.1.4 SUBSTATIONS

Impacts from construction of the substations would be similar to the solar arrays, with the addition of multiple linear transmission lines connecting the proposed substations to the existing electrical grid. The construction of the transmission lines would include vegetation clearing within the right-of-way and construction of a series of tall, vertical structures. During construction, the motion associated with

construction equipment, structure building, and conductor stringing, as well as vegetation clearing and landform modification would be noticeable and create visual contrast within the viewshed. Construction activities for the substations and transmission lines would result in low, short-term, probable, local impacts on visual resources.

4.2.1.5 BATTERY ENERGY STORAGE SYSTEMS

Impacts would be similar to the proposed solar arrays and substations, with these proposed BESS sites located adjacent to the proposed substation locations. The construction of the BESSs would introduce additional motion from construction equipment into the setting. Additionally, the removal of vegetation and earthwork would introduce areas of exposed soil, which would contrast with the existing setting until vegetation has been restored. Construction activities for the BESSs would result in low, short-term, probable, local impacts on visual resources.

4.2.1.6 COMBINED IMPACTS OF COMPONENTS

During the 23-month construction schedule, there would be short-term impacts from construction activities occupying a large portion of the landscape when considering all of the Project components (i.e., wind turbines, solar arrays, collector lines, access road, multiple transmission lines and substations, O&M facility, and the BESSs). This would include views of additional vehicular traffic as well as areas of exposed soil after the removal of vegetation and during earthwork activities. The removal of vegetation would be noticeable in the setting and contrast with the existing character; however, over time, after vegetation is reclaimed in temporary disturbance areas, it would begin to repeat vegetation patterns common in the area.

Viewpoints and KOPs located within the foreground distance zone (0–0.5 mile) would be most impacted by the construction of multiple Project components, particularly when a large portion of their viewshed is occupied by construction activities. These short-term impacts are anticipated to extend beyond the neighboring receptors, resulting in potential regional impacts from more distant viewpoints where construction activities would occupy a large portion of their viewshed. Construction disturbance would be limited to the extent practicable in accordance with best management practices (BMPs) and the Project's site certificate conditions. After construction is completed, areas of temporary disturbance, including temporary access roads no longer used as Project access roads, would be reclaimed to appear similar to their original condition. In general, vegetated areas that are temporarily disturbed or removed during construction of the Project would be revegetated to blend with adjacent undisturbed lands with these areas being monitored for 3 to 5 years postconstruction to meet a series of success criteria outlined in the Project's Revegetation and Noxious Weed Management Plan (Horse Heaven Wind Farm, LLC 2022: Appendix N). Areas with soil compaction and disturbance from construction activities would also be revegetated in accordance with the Project's Revegetation and Noxious Weed Management Plan.

In summary, activities during construction of all components of the Project would result in medium, short-term, probable, regional impacts on visual resources.

4.2.2 Impacts during Operation

The introduction of the Project into the setting would result in long-term modifications to the existing landscape's form, line, color, and texture, and would modify views from the identified KOP locations to varying degrees. Although impacts would depend on a variety of viewing conditions, one overall concept to note is that the visual impacts associated with the Project tend to change considerably with distance. These effects would be most impactful on residential, travel route, and recreation viewers located within

the foreground distance zone (0–0.5 mile), where the Project would create strong vertical and horizontal forms and lines that would contrast with the primarily organic forms of the existing setting. There are 15 residences, mostly located on participating properties, that would have foreground views (less than 0.5 mile) of either the proposed turbines or solar arrays. Two residences on non-participating properties would have foreground views of the turbines while no residences on non-participating properties would have views of the proposed solar arrays. One residence on a participating property would have foreground views of both the turbines and proposed solar arrays, while an additional two residences on participating properties would have foreground views of the proposed solar arrays.

Impacts on views from the middleground (0.5–5 miles) would vary based on the extent of existing modifications in view. For locations with views of the existing Nine Canyon Wind Project, or where the existing transmission lines dominate the existing view, the Project would typically result in medium impacts and would be viewed as co-dominant within the existing setting. From viewpoints where existing modifications do not currently attract attention, the Project would dominate views since a large portion of the viewshed would typically be occupied by large, spinning wind turbines. From this distance, the individual turbines tend to visually "merge" with other turbines in the string from some viewing angles, resulting in the turbines appearing larger in mass and scale.

From more distant views, within the background distance zone (more than 5 miles away), the proposed wind turbines would appear as vertical lines with a faint spinning motion of the blades—particularly where seen skylined above ridges or other highpoints within the landscape. The proposed solar arrays and other Project components would be mostly indiscernible from the background distance zone.

4.2.2.1 TURBINE OPTION 1

Under Turbine Option 1, impacts to landscape character would range from high to medium. The Project would generally dominate the existing landscape character through the introduction of a large number of vertical protrusions that would be out of scale with and highly prominent in the landscape. The turbines would be most prominent where sited near the Horse Heaven Hills ridgeline, resulting in high impacts on landscape character. These structures would also introduce spinning movement into the landscape, which would attract attention throughout the area of analysis—particularly where the existing Nine Canyon Wind Project is not visible. Impacts to landscape character would be medium near the existing Nine Canyon Wind Project since this portion of the landscape—particularly the area east of I-82—has already been modified. In general, the existing level of landscape intactness would be diminished, resulting in landscapes characterized by energy generation, compared to the existing agrarian landscape character.

Impacts on key views would range from high to medium. Table 4 provides an overview of the impacts from each KOP/viewpoint, and includes the viewer position, the extent of the horizontal view occupied by the Project, the level of contrast, and the magnitude of impact.

In summary, activities during operation of Turbine Option 1 would result in areas of high, long-term, unavoidable, regional impacts on visual resources.

4.2.2.2 TURBINE OPTION 2

The Project, under Turbine Option 2, would have similar high impacts on landscape character as Option 1. There would be fewer structures introduced into the setting under this option, which would result in less visual clutter, however, due to the increased height of the structures in Option 2, these effects would be balanced, resulting in overall similar effects. The additional height of Option 2 turbines

would be more prominent near the Horse Heaven Hills ridgeline or adjacent to existing landscape modifications where the increased vertical forms would be most evident.

Table 5 describes the impacts on views from the KOPs and other viewing locations associated with Turbine Option 2. In summary, activities during operation of Turbine Option 2 would result in areas of high, long-term, unavoidable, regional impacts on visual resources.

Table 4. Key Observation Point/Viewpoint Impact Table – Turbine Option 1

KOP #	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approximate Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
1	McNary NWR	Recreation	5.2 miles	Inferior	80 degrees	Moderate	Medium	The tall, proposed turbines would be similar in appearance to the existing Nine Canyon Wind Project, also visible from this location, but the proposed turbines would be larger and out of scale with the existing landscape. Views would be unobstructed toward the Lease Boundary. The prominence of the proposed wind turbines rising above the landscape, including additional motion introduced by the spinning turbine blades, would further attract attention from viewers and dominate the existing landscape character. Because visitors and travelers would be visiting for a limited time, the level of contrast would be reduced by the short view duration limiting the influence of the Project on these views. The Project would expand the extent of view occupied by moving wind turbines and would be prominent from this inferior viewing angle, resulting in medium, long-term impacts on views.
2	S Clodfelter Road – East, Central, and West	Residential	3.0 miles	Inferior	200 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 3 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed. Views toward the east would include the existing Nine Canyon Wind Project, which occupies only a narrow portion of the landscape as viewed from this location. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long-term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.
3	Chandler Butte	Recreation	2.5 miles	Superior	50 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 2.5 miles away, as a moderate portion of the viewshed would include moving wind turbines. Views of the Project in an open plains landscape would be unobstructed, with views of the existing Nine Canyon Wind Project occurring approximately 20 miles away on the distant hills. Due to the superior viewing angle, the contrast between the light color of the turbines and the agricultural fields would create strong visual contrast, visible to recreationists along Chandler Butte. The series of proposed wind turbines would be highly prominent in the view resulting in high, long-term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.
4	I-82 South	Travel route	7.0 miles	Inferior	100 degrees	Moderate	Medium	The proposed turbines would attract attention from this location, approximately 7 miles away, as a large portion of the viewshed would include moving wind turbines. Due to the distance, the turbine's form would be distinguishable, but the texture and color would be muted and less detailed. Views from I-82 include an existing transmission line and the Nine Canyon Wind Project, approximately 12 miles away, with these existing features influencing but not dominating views from this location. As travelers drive I-82 from this point to KOP 6, approximately 10 miles, impacts on views of the proposed wind turbines would incrementally increase. From this location, the turbines would be viewed unobstructed and skylined, which would attract attention—particularly where only moving turbine blades would be seen over the horizon. The impacts on these views would be medium and long term.
5	Badger Mountain	Recreation	4.7 miles	Level	150 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 5 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed, with views of the Project occurring beyond developed lands of Badger and the Horse Heaven Hills ridgeline. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long-term impacts on views—particularly where views of multiple wind turbines would overlap and appear larger in mass.
6	Bofer Canyon Road/I-82	Travel route	1.7 miles	Level	120 degrees	Strong	High	The proposed turbines would be viewed in context with an existing transmission line from this KOP. The existing transmission line has introduced strong vertical lines into the existing setting. Due to the proximity of the proposed turbines (less than 2 miles), the introduction of movement into the landscape, and the extent of view occupied by these structures, the Project would dominate views from this location along Bofer Canyon Road and I-82. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the proposed turbines would be highly prominent as viewed both to the east and west. Based on the landscape modifications introduced by the proposed wind turbines, the Project would result in high, long-term impacts on views.
7	Highway 221	Travel route, residential	5.8 miles	Level	70 degrees	Moderate	Medium	The proposed turbines would be viewed in context with a distant existing transmission line, which has introduced a series of skylined structures along the horizon. The proposed turbines would, however, appear larger and out of scale with the features of the existing landscape. Views would be unobstructed toward the Lease Boundary. The prominence of the proposed wind turbines rising above the landscape, including the introduction of motion, would further attract attention from viewers and modify the existing landscape character. The Project would be prominent within a moderate portion of the viewshed, resulting in medium, long-term impacts on views.
8	Kennewick (Canyon Lakes Area) – South and West	Residential	3.6 miles	Inferior	170 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 3.5 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed with views toward the west including an existing transmission line. Views to the southeast include the existing Nine Canyon Wind Project, which occupies a narrow portion of the landscape as viewed from this location. The series of proposed skylined wind turbines would be highly prominent in the view resulting in high, long-term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.
9	Benton City	Residential, travel route, commercial	2.7 miles	Inferior	10 to 80 degrees (based on level of screening)	Moderate	Medium	The proposed wind turbines would be intermittently screened by development within Benton City, with partial screening of the Project features occurring where the Horse Heaven Hills would partially obstruct views to the south. Where visible, there would be a limited number of turbines in view, as depicted in the visual simulation (see Attachment B). The presence and motion of the turbines would attract attention but would appear co-dominant with other commercial and residential developments. Views from other areas within the city may have more expansive, unobstructed views of the proposed wind turbines similar to KOPs 2 and 10. The Project would expand the extent of view occupied by moving wind turbines and would be prominent from this inferior viewing angle, resulting in medium, long-term impacts on views.
10	Badger Road	Residential, travel route	1.5 miles	Inferior	150 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 1.5 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the proposed wind turbines, from an inferior viewing angle, would be partially screened by topography and intermittently screened by development. Movement associated with the turbine blades would be highly visible, particularly where only the blades would visible, repeatedly rising over the hills. Based on the level of contrast introduced by the proposed wind turbines, which are much larger in scale than existing modifications in view, the Project would result in high, long-term impacts on views.

KOP #	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approximate Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
11	Highland/ Finley Area	Residential	2.0 miles	Inferior	100 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 2 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the Project on the Horse Heaven Hills would be unobstructed, with views toward the southwest including residential and agricultural development, as well as the existing Nine Canyon Wind Project, which occupies a moderate portion of the landscape as viewed from this location. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long-term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.
12	County Well Road	Residential, travel route	2.5 miles	Level	100 degrees	Moderate	Medium	The proposed turbines would be viewed in context with an existing transmission line. The existing transmission line has modified the existing setting, including the introduction of distinct, vertical lines. Due to the proximity of the proposed turbines (approximately 2.5 miles), the introduction of movement into the landscape, and the extent of view occupied by these structures, the Project would attract attention and begin to dominate views from this location. In consideration of the existing modifications in view, the Project would result in medium, long-term impacts on views from this location. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the proposed wind turbines would be prominent.
13	Travis Road South of Sellards Road	Residential, travel route	1.1 miles	Level	150 degrees	Strong	High	The proposed turbines would dominate views from this location, approximately 1 mile away, as a large portion of the viewshed would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed within a mostly intact existing landscape. The series of proposed skylined wind turbines would be highly prominent in the view, resulting in high, long-term impacts on views, particularly where views of multiple wind turbines would overlap and appear larger in mass.
14	South of Benton City	Residential	1.7 miles	Inferior	90 degrees	Strong	High	Compared to KOP 9, views toward the Project area from this portion of Benton City are mostly unobstructed. The proposed turbines would dominate views from this location, approximately 1.7 miles away, as a large portion of the viewshed would include moving wind turbines. Views of the proposed wind turbines, from an inferior viewing angle, would be partially screened by topography, including those turbines visible to the southeast. Movement associated with the turbine blades would be highly visible, particularly where only the blades would be visible, repeatedly rising over the hills. Based on the level of contrast introduced by the proposed wind turbines, which are much larger in scale than existing modifications in view, the Project would result in high, long-term impacts on views.
15	Interstate 82	Travel route	0.7 mile	Inferior	180 degrees	Strong	High	The proposed turbines would dominate views from this location, less than 1 mile away, as views to the east, north, and west would include moving wind turbines. Views of the Project in open, rolling hills would be unobstructed within a landscape modified by the presence of the interstate highway and a communication tower. The prominence of the proposed wind turbines rising above the landscape, including additional motion introduced by the turbine blades, would further attract attention from viewers and dominate the existing landscape character, resulting in high, long-term impacts on views from these locations.
16	U.S. Highway 730 – Wallula Gap	Travel route	5.0 miles	Inferior	0 degrees	None	Negligible	The proposed turbines would be screened by topography as viewed from this location, approximately 5 miles away. Based on this level of screening, Project elements would not be visually evident from this location.
N/A	Dispersed residences located 0.5 mile from proposed turbines (foreground views)	Residential	Less than 0.5 mile	Level	Up to 300 degrees	Strong	High	The proposed turbines would dominate views from dispersed residences located within the foreground distance zone (includes views from participating and non-participating properties). These views would be most impacted where views of the existing Nine Canyon Wind Project and existing transmission lines would be screened with the proposed turbines dominating a viewshed with limited existing modifications. The prominence of the proposed wind turbines rising above the landscape, including additional motion introduced by the turbine blades, would further attract attention from viewers and dominate the existing landscape character, resulting in high, long-term impacts on views from these locations. Viewers located on participating properties may have less visual sensitivity to modifications introduced by the Project, compared to viewers located on non-participating properties, but the level of visual contrast and Project dominance would remain the same.
N/A	Horse Heaven Hills Recreation Area	Recreation	0.8 mile	Superior, level, and inferior	Up to 140 degrees	Strong	High	Views from the Horse Heaven Hills Recreation Area vary based on location, with elevated views represented by KOP 3, located on Chandler Butte, to inferior views occurring below the ridgeline and similar to KOPs 9 and 10. In general, views from this recreation area would be highly impacted where the Project would modify a large portion of the viewshed through the introduction of moving wind turbines. While hiking on trails below the ridge but within the recreation area, views may be partially screened by topography where visitors would only see the moving turbine blades repeatedly rising over the ridgeline as described for KOP 10. Viewers along the ridgeline trail would be located directly adjacent to the proposed turbines, where views would be strongly altered by the Project. The series of proposed wind turbines would be highly prominent in the view, resulting in high, long-term impacts on views from Chandler Butte, below the ridgeline trails, and from the ridgeline trail.

Table 5. Key Observation Point/Viewpoint Impact Table – Turbine Option 2

KOP #	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
1	McNary NWR	Recreation	5.8 miles	Inferior	80 degrees	Moderate	Medium	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, but since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the Project would result in medium, long-term impacts on views.
2	S Clodfelter Road – East, Central, and West	Residential	3.5 miles	Inferior	200 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered view would be counterbalanced, resulting in high, long-term impacts on views.

KOP #	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Approx. Extent of Horizontal View Occupied by Project	Level of Visual Contrast	Magnitude of Impact	Impact Description
3	Chandler Butte	Recreation	2.8 miles	Superior	50 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent across the landscape. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered view would be counterbalanced, resulting in high, long-term impacts on views.
4	I-82 South	Travel route	7.3 miles	Inferior	100 degrees	Moderate	Medium	Impacts would be similar to Option 1 except the taller turbines would result in fewer turbines within view. The presence of fewer turbines would produce a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered appearance would be counterbalanced, resulting in medium, long-term impacts on views
5	Badger Mountain	Recreation	4.7 miles	Level	150 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. The relative scale of the turbines proposed for Option 2, compared to Option 1, would be apparent as views include residential and agricultural development, providing a source of scale comparison.
6	Bofer Canyon Road/I-82	Travel route	1.8 miles	Level	120 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing transmission line providing a source of scale comparison, and most of the turbines proposed adjacent to this viewpoint would occur regardless of the option selected.
7	Highway 221	Travel route, residential	5.8 miles	Level	70 degrees	Moderate	Medium	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from the highway. There would be fewer turbines in view, resulting in a less cluttered appearance, but since the proposed turbines would be larger in scale (and even larger as compared to the existing transmission line in view), the Project would result in medium, long-term impacts on views.
8	Kennewick (Canyon Lakes Area) – South and West	Residential	5.4 miles	Inferior	170 degrees	Moderate	Medium	Impacts on views would be reduced under Option 2, as the closest proposed wind turbine would be more than 1.5 miles further away compared to Option 1 (approximately 5.4 miles). There would also be fewer turbines in view, resulting in a less cluttered appearance. However, since the proposed turbines would be larger in scale, (and even larger as compared to the existing Nine Canyon Wind Project), the Project would result in medium, long-term impacts on views.
9	Benton City	Residential, travel route, commercial	2.7 miles	Inferior	10 to 80 degrees (based on level of screening)	Moderate	Medium	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be more prominent and most of the turbines proposed adjacent to this viewpoint would occur regardless of the option selected.
10	Badger Road	Residential, travel route	1.5 miles	Inferior	150 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from this area. There would be fewer turbines in view resulting in a less cluttered appearance, but since the proposed turbines would be larger in scale, (and even larger as compared to the existing modifications in view), the Project would result in high, long-term impacts on views.
11	Highland/ Finley Area	Residential	2.5 miles	Inferior	100 degrees	Strong	High	Impacts would be similar to Option 1, except the taller turbines would be more prominent as viewed on the ridgeline. There would be fewer turbines in view, resulting in a less cluttered appearance, particularly where views of multiple wind turbines would overlap and appear larger in mass. Since the proposed turbines would be larger in scale, (and even larger as compared to the existing Nine Canyon Wind Project), the effects of a less cluttered appearance would be counterbalanced, resulting in high, long-term impacts on views.
12	County Well Road	Residential, travel route	2.5 miles	Level	100 degrees	Moderate	Medium	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing transmission line that provides a source of scale comparison.
13	Travis Road South of Sellards Road	Residential, travel route	1.1 miles	Level	150 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing development in view, which provides a source of scale comparison.
14	South of Benton City	Residential	1.7 miles	Inferior	90 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be more prominent, and most of the turbines proposed adjacent to this viewpoint would occur regardless of the option selected.
15	Interstate 82	Travel route	0.7 mile	Inferior	180 degrees	Strong	High	Impacts would be similar to Option 1 but slightly increased in magnitude. The taller turbines proposed under this option would be apparent due to the existing communication tower in view, which provides a source of scale comparison.
16	U.S. Highway 730 – Wallula Gap	Travel route	5.0 miles	Inferior	0 degrees	None	Negligible	The proposed turbines would be screened by topography as viewed from this location approximately 5 miles away. Based on this level of screening, Project elements would not be visually evident from this location.
N/A	Dispersed residences located 0.5 mile from proposed turbines (foreground views)	Residential	Less than 0.5 mile	Level	Up to 300 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from these residences. There would be fewer turbines in view, resulting in a less cluttered appearance. Since the proposed turbines would be larger in scale, the Project impacts would be most apparent where the existing Nine Canyon Wind Project or transmission lines are visible and provide a source of scale comparison. The Project would result in high, long-term impacts on views.
N/A	Horse Heaven Hills Recreation Area	Recreation	0.8 mile	Inferior	Up to 140 degrees	Strong	High	Impacts would be similar to Option 1 except the taller turbines would be more prominent as viewed from this recreation area. There would be fewer turbines in view, resulting in a less cluttered appearance. However, since the proposed turbines would be larger in scale (and even larger as compared to the existing modifications in view), the Project would result in high, long-term impacts on views.

4.2.2.3 SOLAR ARRAYS

The Project would introduce forms, lines, colors, and textures associated with the photovoltaic arrays that are inconsistent with the existing landscape character. The conversion of existing agricultural lands to large expanses of photovoltaic panels would result in visual contrast through their flat, geometric forms and dark, slightly reflective surfaces, which are not common in the setting. The addition of the repetitive, vertical upright features associated with the solar trackers and additional fenced land would be noticeable in this rolling, panoramic landscape.

The Project would be visually prominent in the setting, resulting in medium to high impacts on landscape character. Based on the viewshed analysis from the updated ASC (Horse Heaven Wind Farm, LLC 2022), the County Well Road (see Figure 5 in Attachment A) and Sellards Road (see Figure 6 in Attachment A) solar siting areas would be the most visible options, influencing a larger portion of the landscape, 45% and 51% respectively, within the 5-mile-wide area of analysis. These solar array siting areas would also occur in an area with a more intact existing landscape, as compared to the Bofer Canyon siting area, resulting in more intense impacts on landscape character. The Bofer Canyon option is located in proximity to the existing Nine Canyon Wind Project, which has introduced large-scale energy infrastructure into the landscape. The viewshed analysis identified that 31% of the area within the 5-mile-wide area of analysis would be influenced by the proposed solar arrays within the Bofer Canyon Siting Area (see Figure 7 in Attachment A).

Table 6 describes the impacts on views from the KOPs and other viewing locations associated with the three proposed solar array siting areas. In summary, activities during operation of any of the three solar array options would result in areas of (at minimum) medium, long-term, unavoidable, regional impacts on visual resources, with the County Well Road and Bofer Canyon siting areas resulting in areas of high, long-term, unavoidable, local impacts as viewed from identified KOP locations.

Table 6. Key Observation Point/Viewpoint Impact Table – Solar Array

KOP #	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast*	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
1	McNary NWR	Recreation	Not visible	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
2	S Clodfelter Road – East, Central, and West	Residential	Not visible	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
3	Chandler Butte	Recreation	2.1 miles	Superior	Moderate	Medium	Negligible	Negligible	Views of the County Well Road option would be unobstructed with the Project being prominent and beginning to dominate views from this area. The contrast between the darker solar arrays and the tan/green grasses would be evident from this elevated viewing area, approximately 2 miles away, resulting in medium, long-term impacts on views.
4	I-82 South	Travel route	6.0 miles	Level	Moderate	Negligible	Negligible	Medium	The Bofer Canyon option would be prominent in view and modify the existing landscape through the introduction of dark, geometric solar arrays in a rolling landscape comprised of golden, tan grasses. The impacts on these views would incrementally increase as motorists drive I-82 between this location and KOP 6 (approximately 10 miles), with some views of the solar arrays being intermittently screened by topography. From this location, the Project would result in medium, long-term impacts on views.
5	Badger Mountain	Recreation	Not visible	Level	None	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
6	Bofer Canyon Road/I-82	Travel route	0.6 mile	Level	Strong	Negligible	Negligible	High	The Bofer Canyon option would be visually dominant and demand attention within the setting as solar arrays would be located on both sides of the interstate. An existing transmission line has modified the existing landscape, including the introduction of strong vertical lines. The contrast between the dark solar arrays and the tan grasses would be highly evident. In consideration of the existing modifications in view, the Project would result in medium, long-term impacts on views from this location. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the proposed solar arrays would be highly prominent as viewed both to the east and west resulting in high, long-term local impacts.
7	Highway 221	Travel route, residential	3.1 miles	Level	Weak	Low	Low	Negligible	The County Well Road and Sellards Road options would begin to attract attention but would be visually subordinate in the setting. The low form of the solar arrays would blend with the existing landscape from this distance (approximately 3–4 miles) and would be partially screened by topography and existing structures. The Project would result in low, long-term impacts on views.
8	Kennewick (Canyon Lakes Area) – South and West	Residential	5.9 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
9	Benton City	Residential, travel route, commercial	3.9 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
10	Badger Road	Residential, travel route	6.4 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
11	Highland/ Finley Area	Residential	8.5 miles	Inferior	Slight	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
12	County Well Road†	Residential, travel route	0.2 mile	Level	Strong	High	Negligible	Negligible	The County Well Road Option would be prominent in view and modify the existing landscape through the introduction of dark, geometric solar arrays in a flat to rolling landscape comprised of tan-colored agricultural fields. An existing transmission line has already modified the landscape, including the introduction of strong vertical lines and geometric forms. In consideration of the existing modifications in view, the Project would result in medium, long-term impacts on views from this location. These impacts would continue to increase as viewers would pass the existing transmission line into an area where views of the proposed solar arrays would be highly prominent resulting in high, long-term local impacts.
13	Travis Road South of Sellards Road	Residential, travel route	1.0 mile	Level	Moderate	Negligible	Medium	Negligible	The Sellards Road Option would be prominent in view and modify the existing landscape through the introduction of dark, geometric solar arrays in a rolling landscape comprised tan-colored agricultural fields (note: visual simulation in Attachment B does not include these views to the west). The views from this area are generally intact, with views of the Project occurring away from the direction of travel along the road. Views of the Project would therefore be short in duration. In consideration of view duration and partial screening by existing topography, the Project would result in medium, long-term impacts on views from this location.
14	South of Benton City	Residential	3.2 miles	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.

KOP #	Viewer Name	Viewer Type	Distance to Project	Viewer Position	Level of Visual Contrast*	Magnitude of Impact			Impact Description
						County Well Road Siting Area	Sellards Road Siting Area	Bofer Canyon Siting Area	
15	Interstate 82	Travel route	0.1 mile	Level	Strong	Negligible	Negligible	High	The Bofer Canyon option would be visually dominant and demand attention within the setting, as solar arrays would be located on both sides of the interstate. (note: visual simulation in Attachment B does not include these views to the east, south, or west). The interstate highway, distribution power line, and communication tower have modified the existing landscape, including the introduction of vertical and curving lines, but the overall composition of the landscape is visually intact. Views of the proposed, geometric solar arrays, both to the east and west, would be highly prominent, resulting in high, long-term local impacts as described under KOP 6.
16	U.S. Highway 730 – Wallula Gap	Travel route	Not visible	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.
N/A	Horse Heaven Hills Recreation Area	Recreation	Not visible	Inferior	None	Negligible	Negligible	Negligible	Project elements associated with the three solar siting areas would not be visually evident.

* Level of visual contrast indicated here refers to the solar siting area(s) where a low, medium, or high magnitude of impact was identified in subsequent columns. For alternatives where a "negligible" magnitude of impacts was identified, the proposed solar arrays would not be readily seen from those KOP locations.

† Views from dispersed residences within the foreground distance zone (0–0.5 mile) were analyzed from KOP 12.

4.2.2.4 SUBSTATIONS

The proposed substations would introduce a flat, rectangular, geometric form associated with the substation yard and tall, vertical, and geometrical substation equipment. These industrial features would contrast with the existing rolling agrarian landscape character. Where located adjacent to existing transmission lines or substations, the proposed elements would be in scale and consistent with the landscape setting, but in areas where there are limited existing utilities, the proposed substations would alter the landscape setting and would be visually prominent.

In general, the proposed substations would not attract attention from most locations within the area of analysis. The introduction of the proposed substations into views from KOPs 6 and 12, which have been modified by an existing transmission line, would result in long-term, medium impacts on views from 1.2 miles and 0.5 mile away respectively. The geometric form of the proposed substation yard and vertical structures would attract attention but would be co-dominant with the existing modifications in the landscape. Views from KOPs 3, 4, and 7 would be minimally modified by the proposed substations as views would occur from approximately 2.7 to 7.3 miles away, where the Project would mostly blend with the existing setting. The geometric form of the substation and vertical protrusions would appear in scale with the existing landscape from these more distant viewpoints.

The proposed substations would not be visible from KOPs 1, 2, 5, 8, 9, 10, 11, 13, 14, 15, 16, and the Horse Heaven Hills Recreation Area, therefore no impacts from this Project component would occur on these views.

The proposed transmission lines would modify the existing landscape character through the introduction of repeating vertical transmission line structures, associated linear access roads, and associated vegetation clearing. These effects would be most apparent where there are no adjacent existing transmission lines or other vertical protrusions (e.g., communication towers, substations, etc.), and would result in long-term impacts on landscape character.

Impacts to viewers from proposed transmission lines would vary from high to low. The highest impacts would occur on the views from four KOP locations (KOPs 6, 12, 13, and 15) located within 2 miles of the proposed transmissions lines. Views from KOP 6 have been modified by an existing transmission line, with the introduction of the proposed transmission line resulting in medium, long-term impacts from approximately 1.2 miles away. The form of the existing transmission line would be repeated by the Project (H-frame structures), reducing potential landscape clutter, and would be sited further away than the existing transmission line. Therefore, the Project would attract attention but would be co-dominant with the existing modifications.

The proposed transmission facilities would begin to dominate views from KOP 12, where an existing transmission line crosses the road, and the Project parallels the road with a series of transmission line structures stretching to the horizon. Due to the head-on view of the proposed transmission line and its difference in design compared to the existing line, the Project would result in medium, long-term impacts from this location. Views from KOPs 13 and 15 would be highly impacted by the proposed transmission line. From this location, there are limited existing modifications in view, with the existing landscape setting appearing mostly intact. The Project would dominate these unobstructed views through the introduction of tall transmission line structures viewed as skylined above the low, rolling terrain.

The proposed transmission lines would not be visible from KOPs 1, 5, and the Horse Heaven Hills Recreation Area, therefore no impacts from this Project component would occur on these views. Impacts to views from all other KOPs would be low. Impacts on views resulting from the introduction of the proposed transmission lines would be low in magnitude from KOPs 2, 3, 4, 7, 8, 9, 10, and 11 due to the viewing distance (more than 2 miles away).

In summary, during operation the substations and transmission lines would result in areas of high, long-term, unavoidable, local impacts as well as areas of medium, long-term, unavoidable, regional impacts on visual resources.

4.2.2.5 BATTERY ENERGY STORAGE SYSTEMS

Each proposed BESS would introduce a flat, rectangular, geometric form associated with its proposed yard, similar to the proposed substations, with equipment contained in geometric shipping containers (stacked up to 40 feet tall). These proposed features would contrast with the existing rolling agrarian landscape character.

In general, the proposed BESSs would not attract attention from most locations within the area of analysis. The introduction of the proposed BESSs into views from KOPs 6 and 12, which have already been modified by an existing transmission line, would result in long-term, medium impacts on views from 1.2 miles and 0.5 mile away respectively. The geometric form of the proposed BESSs, including the vertically stacked rectangular containers, would attract attention but would be co-dominant with the existing modifications. Views from KOPs 3, 4, and 7 would be minimally modified by the BESSs as views would occur from approximately 2.7 to 7.3 miles away, where the Project would mostly blend with the existing landscape setting. The geometric form of the BESSs from these three KOPs would appear in scale with the existing landscape from these more distant viewpoints.

The proposed BESSs would not be visible from KOPs 1, 2, 5, 8, 9, 10, 11, 13, 14, 15, 16, and the Horse Heaven Hills Recreation Area, therefore no impacts from these Project components would occur on these views. Overall, activities during operation of the BESSs would result in medium, long-term, unavoidable, local impacts on visual resources.

4.2.2.6 COMBINED IMPACTS OF COMPONENTS

The combined impacts of the different Project components would result in a landscape character dominated by large-scale energy infrastructure, including wind turbines, solar arrays, collector lines, access roads, multiple transmission lines and substations, the O&M facility, and the BESS. The existing setting does include a smaller wind farm and two existing transmission lines, but the scale of the Project and prominence of the proposed turbines would result in high, long-term impacts to the existing landscape.

Views from most residences and other KOP locations would primarily be impacted by the presence of the large, moving proposed wind turbines. The turbines would attract attention and depending on the extent of their viewshed modified by the turbines, could dominate views as described in Tables 4 and 5. In addition, some viewers, such as those associated with KOPs 3, 6, 12, 13, and 15 would have views of multiple Project components, introducing additional variety and visual clutter into these views as shown in the visual simulations (see Attachment B). Views from these locations would be dominated by energy infrastructure as a result of the additive effects from each Project component, resulting in high, long-term impacts on these views. Since these impacts occur on viewpoints beyond the neighboring receptors, these effects would be regional in extent. In summary, activities during operation of all components of the Project would result in high, long-term, unavoidable, regional impacts on visual resources.

In consideration of the CESA methods and the EFSEC process, the Project was assessed as it relates to compliance with state and local visual management requirements. The Project analysis contained in this report would meet WAC 463-60-362(3), which establishes the requirements for a visual resource analysis to meet the EFSEC process. Specifically, the analysis describes the aesthetic impacts of the proposed Project, shows its location relative to physical features of the site, and outlines procedures to restore or

enhance the landscape disturbed during construction (see Section 4.2.4 of this report for proposed mitigation measures, the Applicant's ASC including the Revegetation and Noxious Weed Management Plan and Initial Site Restoration Plan).

The Benton County Comprehensive Plan identified a planning goal to conserve the visually prominent naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape, which are uniquely a product of ice age floods. The planning policy further states that the County should "consider the preservation of the ridges and hillside areas through various development regulations" (Benton County 2022). Since these lands have not been placed into Open Space Conservation, or other types of conservation, and there are no specific policies to protect the landscapes impacted by the Project, the Project would technically be in compliance with this aspect of the county plan. The Horse Heaven Hills and northern ridgeline would, however, become dominated by energy infrastructure, with potential long duration views from areas within the communities between Benton City and Kennewick. These impacts on views would be most intense where unobstructed views of a large number of turbines occur.

4.2.3 Impacts during Decommissioning

The decommissioning and removal of the Project and its components would have similar impacts as the construction process. The option to repower the Project with new models of wind turbines and solar arrays would also have impacts similar to the construction process but would not result in long-term decommissioning and reclamation of the site. Repowering of the facility is not analyzed further in this report.

The decommissioning process would result in increased motion associated with construction equipment, short-term impacts from dust generation, and landform modification to more closely match preconstruction conditions. The removal of Project components would likely require additional ground disturbance and vegetation clearing, resulting in reclamation efforts similar to those conducted after the construction process was completed. The restoration of vegetation in these areas would take a number of years to fully establish, but over time the landscape impacted by the Project would begin to more closely resemble preconstruction conditions.

4.2.3.1 TURBINE OPTION 1

Impacts would be similar to the construction of the Project including the movement of vehicles attracting attention during decommissioning activities. Viewers located within the foreground distance zone (0–0.5 mile) or in locations where views would be occupied by large portions of the Project being decommissioned, would result in increased visual contrast on these views. These impacts would be short in duration and would cease after removal of the Project is complete and vegetation has been reestablished. Decommissioning activities for Turbine Option 1 would result in medium, short-term, probable, local impacts on visual resources.

4.2.3.2 TURBINE OPTION 2

Impacts would be similar to Turbine Option 1 except there are fewer proposed wind turbines, requiring fewer roads and other supporting facilities to be removed. This would result in slightly reduced visual contrast and modifications to the existing landscape introduced during Project decommissioning. Decommissioning activities for Turbine Option 2 would result in medium, short-term, probable, local impacts on visual resources.

4.2.3.3 SOLAR ARRAYS

Impacts would be similar to the construction of the Project, which would be focused within the selected solar siting areas. Within the fenced boundaries, all lands would be restored to more closely match preconstruction conditions, including revegetation of the site. Decommissioning activities for the solar arrays would result in low, short-term, probable, local impacts on visual resources.

4.2.3.4 SUBSTATIONS

Impacts would be similar to the construction of the Project for both the proposed substations and transmission lines. The removal of the tall, vertical structures associated with both components would result in additional motion from construction equipment, structure deconstruction, and conductor removal. As described for other components, vegetation restoration would occur in these disturbed areas, and the landscape would begin to more closely resemble preconstruction conditions. Decommissioning activities for the substations and transmission lines would result in low, short-term, probable, local impacts on visual resources.

4.2.3.5 BATTERY ENERGY STORAGE SYSTEMS

Impacts would be similar to the construction of the Project with the removal of the BESS containers and reclamation of those sites. This would include additional motion from construction equipment and associated dust during those activities. As described for other components, vegetation restoration would occur in these disturbed areas, and the landscape would begin to more closely resemble preconstruction conditions. Decommissioning activities for the BESSs would result in low, short-term, probable, local impacts on visual resources.

4.2.3.6 COMBINED IMPACTS OF COMPONENTS

During Project decommissioning, there would be short-term impacts from these activities, which would occupy a large portion of the landscape and include removal of wind turbines, solar arrays, the O&M facility, transmission lines, BESSs, and substations, as well as the reclamation of access roads, turbine pads, and other areas disturbed during construction and operation of the Project. These activities would include views of additional vehicular traffic as well as areas of exposed soil after the removal of vegetation and during earthwork activities, prior to site reclamation efforts. The removal of vegetation would be noticeable in the setting and contrast with the existing character; however, over time, as vegetation is re-established in the area, it would begin to repeat vegetation patterns common in the area.

Viewpoints and KOPs located within the foreground distance zone (0–0.5 mile) would be most impacted by decommissioning, particularly where a large portion of their viewshed would be occupied by decommissioning multiple Project components simultaneously. Overall, activities during decommissioning of all components of the Project would result in medium, short-term, probable, regional impacts on visual resources.

4.2.4 Mitigation Measures

4.2.4.1 APPLICANT COMMITTED

To reduce impacts on landscape character and views and to strive to minimize any incompatibility with state and local visual management requirements, the Applicant has developed a series of BMPs and other mitigation measures as part of the Project ASC. Many of these BMPs, as well as the design of the Project, incorporated mitigation measures outlined in the BLM's *Best Management Practices for Reducing Visual*

Impacts of Renewable Energy Facilities on BLM-Administered Lands (BLM 2013) and CESA's visual impact assessment process (CESA 2011), including (but not limited to)

- Considering topography when siting wind turbines including less rigid turbine configurations in rolling terrain responding to local topography;
- Clustering or grouping turbines to break up long lines of turbines;
- Striving to create visual order and unity among turbine clusters;
- Maintaining operational turbines and other Project components;
- Preparing an effective decommissioning plan; and
- Selecting appropriate paint and finish selection to match the existing setting.

The Project also considered two different turbine options as part of the assessment of impacts to compare one design with more, smaller turbines (Option 1) to a design with fewer, taller turbines (Option 2). Due to the siting and operating requirements for wind turbines, there are limited mitigation measures that would considerably reduce impacts on visual resources, beyond downsizing the Project to reduce the number of turbines in view. The use of the following Applicant-committed mitigation in the Project design, construction, operation, and decommissioning stages would both directly and indirectly reduce impacts on visual resources:

- Active dust suppression will be implemented during construction.
- Following completion of construction, temporarily disturbed areas (e.g., laydown yards, crane paths not used as Project access roads) will be returned to their previous conditions once construction is complete.
- Restoration of the laydown yards will involve preconstruction stripping and storing topsoil (including weed avoidance), removing the gravel surface, regrading to preconstruction contours, restoring topsoil and de-compacting subsoils as needed, and reseeding with approved seed mixes.
- Following completion of construction, the temporary crane paths will be removed and the area restored in accordance with the Project's Revegetation and Noxious Weed Management Plan.
- The Applicant will provide a clean-looking facility free of debris and unused or broken-down equipment by storing equipment and supplies in designated areas within the O&M facilities and promptly removing damaged or unusable equipment from the site.
- The turbines and solar arrays will be uniform in design to present a trim, uncluttered, aesthetically attractive appearance.
- The Applicant will construct support facilities with non-reflective materials in muted tones and will use white or light gray, non-reflective paint to minimize the need for daytime aviation lighting and eliminate glare from the turbines.
- After construction is completed, vegetated areas that are temporarily disturbed or removed during construction of the Project would be restored to pre-disturbance conditions as reasonably possible, in accordance with the Revegetation and Noxious Weed Management Plan.

4.2.4.2 RECOMMENDED MITIGATION MEASURES

To further reduce impacts on visual resources, this report includes additional recommended mitigation measures adapted from the BLM (2013) and CESA (2011).

- **Wind turbines**

  - Relocate turbines located within the foreground distance zone (0–0.5 mile) of residences (BLM 2013; CESA 2011).
  - No piggyback advertising, cell antennas, commercial messages, or symbols placed on proposed wind turbines (BLM 2013).
  - Maintain clean nacelles and towers to avoid any spilled or leaking fluids accumulating dirt, contrasting with the clean, white/gray wind turbine (BLM 2013).
- **Solar arrays**
  - Avoid complete removal of vegetation beneath solar arrays, where possible, to reduce contrast between the exposed soil and adjacent undisturbed areas (BLM 2013).
  - Install opaque fencing to directly screen views of the solar arrays where sited within 0.5 mile of KOPs (including the alignment of I-82) or residences. To allow the proposed fencing to blend into the setting, color-treat the fencing to minimize color contrast with the existing landscape (BLM 2013).
- **Substation and transmission lines**
  - Maximize the span length across highways, and other linear viewing locations, to reduce visual contrast at the highway crossings, moving the structures as far from the road as possible (BLM 2013).
  - Choose the type of proposed transmission structure (H-frame or monopole) to best match the adjacent transmission lines, minimizing clutter and visual contrast introduced into the landscape (BLM 2013).

Application of these mitigation measures would incrementally lessen visual contrast but based on the scale of the Project, including the height of the proposed wind turbines, these measured would not effectively reduce identified levels of contrast or degrees of impact magnitude.

4.3 Impacts of No Action Alternative

Under the No Action Alternative, impacts related to visual resources from the construction, operation, and decommissioning of the Proposed Action would not occur. Although the Proposed Action would not occur, other renewable energy projects may be constructed within the visual area of analysis. These projects could lead to development of a wind and/or solar facility within the Project's Lease Boundary, which could result in impacts similar to those described herein for construction, operation, and decommissioning of the Proposed Action. However, for the purpose of this analysis, it is assumed that no future development would occur within the Lease Boundary, and therefore, impacts on visual resources would not occur.

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ATTACHMENT A

Maps

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 1
Turbine Layout Option 1

BENTON COUNTY, WA

HH-West Intermediate Substation (Alternate)

HH-West Step-up Substation 500-kV (Alternate)

HH-West Intermediate Substation (Primary)

BPA Webber Canyon Substation (Alternate)

BPA Webber Canyon Substation (Primary)

HH-West Step-up Substation 500-kV (Primary)

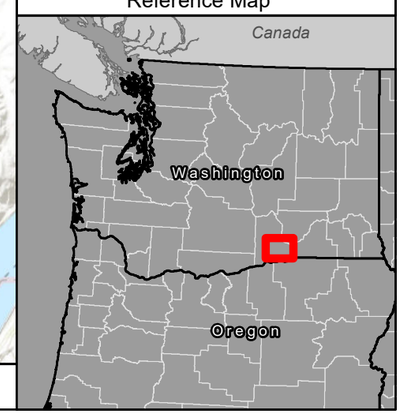
BPA Bofer Canyon Substation

HH-East Substation

- Project Lease Boundary
- Option 1 Turbine Layout
- Sellards Road 230-kV Transmission Line (Primary)
- Sellards Road 500-kV Transmission Line Step-up (Primary)
- Sellards Road 230-kV Transmission Line (Alternate)
- Solar Intertie 230-kV Transmission Line
- County Well Road 230-kV Transmission Line (Primary)
- County Well Road 500-kV Transmission Line Step-up (Primary)
- County Well Road 230-kV Transmission Line (Alternate)
- 230-kV Intertie Transmission Line (Primary)
- 230-kV Intertie Transmission Line (Alternate)
- 230-kV Alternate Intertie Transmission Line
- Project Substation (Primary)
- Project Substation (Alternate)
- Solar Siting Area
- Solar Array
- BPA Substation (Primary)
- BPA Substation (Alternate)

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 2
Turbine Layout Option 2

BENTON COUNTY, WA

HH-West Intermediate Substation (Alternate)

HH-West Step-up Substation 500-kV (Alternate)

HH-West Intermediate Substation (Primary)

BPA Webber Canyon Substation (Alternate)

BPA Webber Canyon Substation (Primary)

HH-West Step-up Substation 500-kV (Primary)

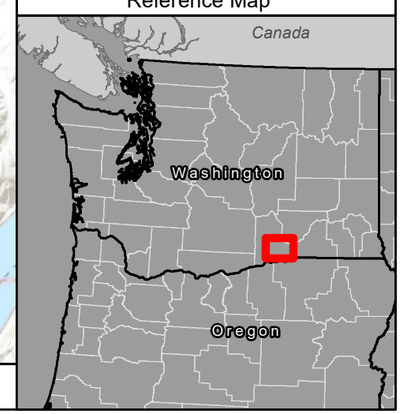
BPA Bofer Canyon Substation

HH-East Substation

- Project Lease Boundary
- Option 2 Turbine Layout
- Sellards Road 230-kV Transmission Line (Primary)
- Sellards Road 500-kV Transmission Line Step-up (Primary)
- Sellards Road 230-kV Transmission Line (Alternate)
- Solar Intertie 230-kV Transmission Line
- County Well Road 230-kV Transmission Line (Primary)
- County Well Road 500-kV Transmission Line Step-up (Primary)
- County Well Road 230-kV Transmission Line (Alternate)
- 230-kV Intertie Transmission Line (Primary)
- 230-kV Intertie Transmission Line (Alternate)
- 230-kV Alternate Intertie Transmission Line
- Project Substation (Primary)
- Project Substation (Alternate)
- Solar Siting Area
- Solar Array
- BPA Substation (Primary)
- BPA Substation (Alternate)

TETRA TECH

Reference Map



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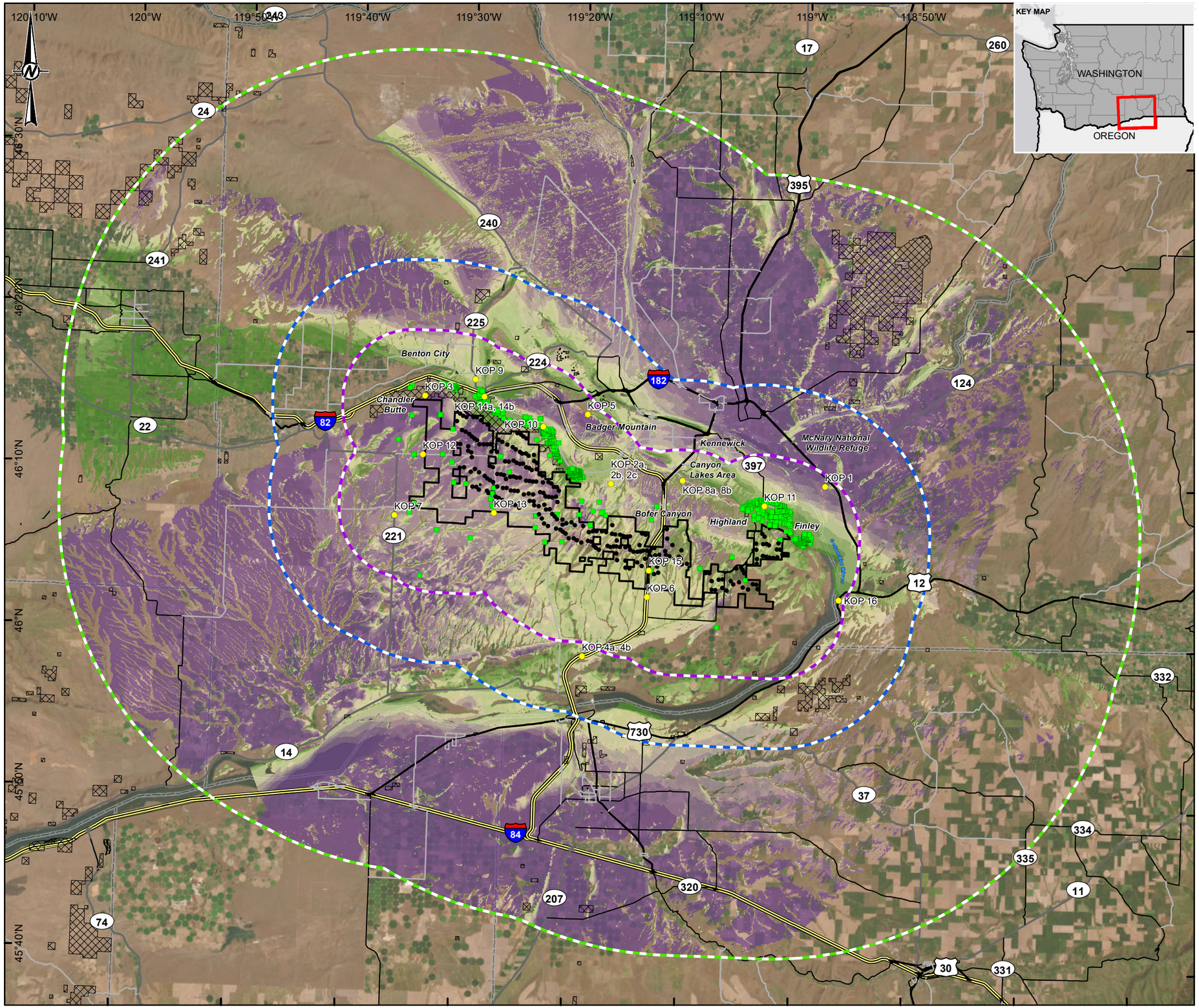

LEGEND

- Proposed Turbine Location (244 Turbines modeled at 499' blade-tip height)
- Viewpoint Location
- Existing Residence
- Project Lease Boundary
- 10 mile Buffer
- 5 mile Buffer
- 25 mile Buffer
- BLM Land

Number of Turbines Potentially Visible

- 0
- 1 - 10
- 11 - 25
- 26 - 50
- 51 - 100
- 101 - 125
- 126 - 150
- 151 - 175
- 176 - 200
- > 200

0 5 10
MILES

NOTE(S)
1.

REFERENCE(S)
1. PROJECT FEATURES PROVIDED BY EFSEC, NOV 2021
2. SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Viewshed Analysis Results: Turbine Layout Option 1

CONSULTANT		
	YYYY-MM-DD	2023-07-07
	DESIGNED	HJ
	PREPARED	HJ
	REVIEWED	KW
	APPROVED	####

PROJECT NO.	CONTROL	REV.	FIGURE
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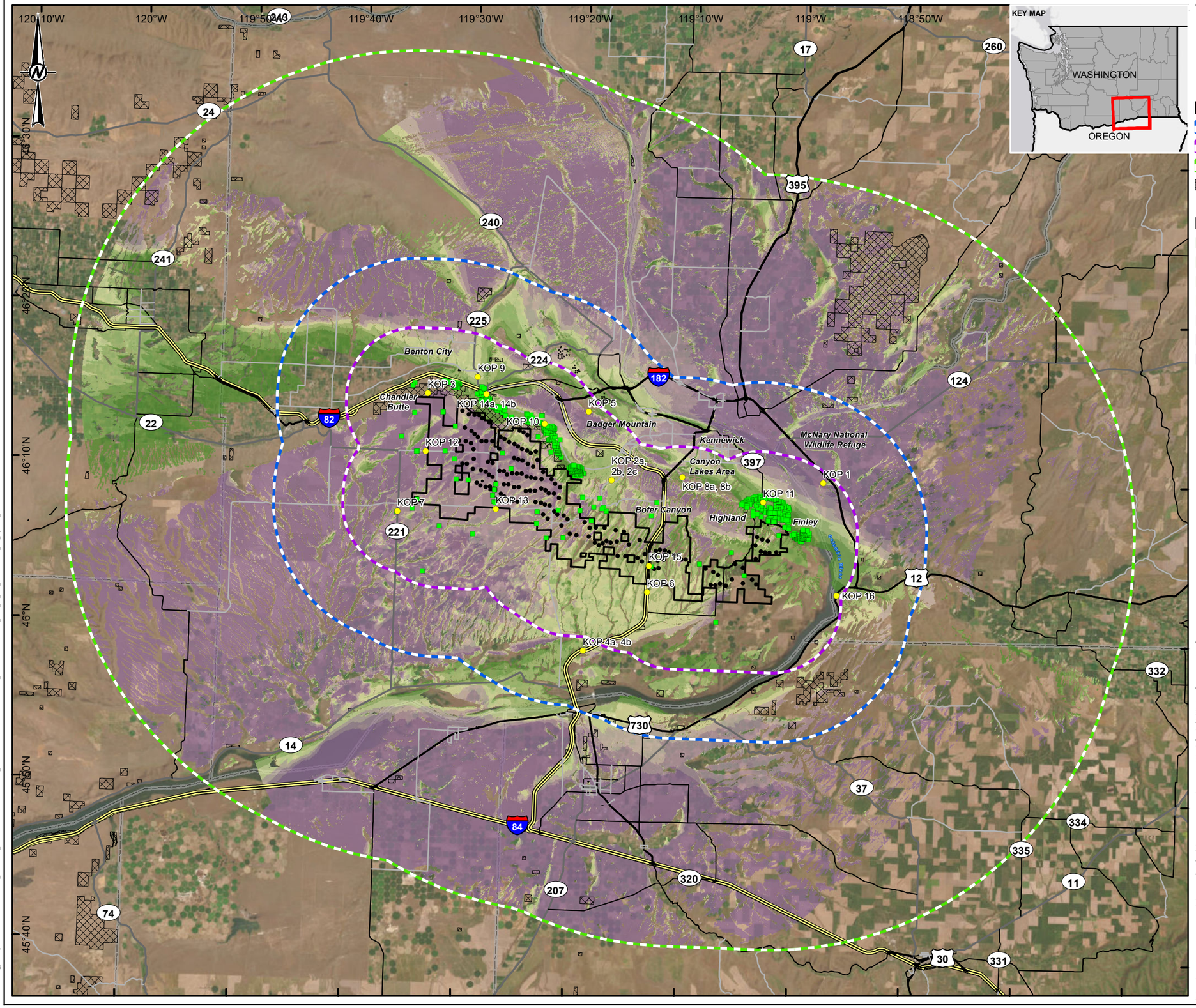

LEGEND

- Proposed Turbine Location (150 Turbines modeled at 671' blade-tip height)
- Viewpoint Location
- Existing Residence
- Project Lease Boundary
- 10 mile Buffer
- 5 mile Buffer
- 25 mile Buffer
- BLM Land

Number of Turbines Potentially Visible

- 0
- 1 - 10
- 11 - 25
- 26 - 50
- 50 - 75
- 76 - 100
- 101 - 125
- 126 - 150

0 5 10
MILES

NOTE(S)
1.

REFERENCE(S)
1. PROJECT FEATURES PROVIDED BY EFSEC, NOV 2021
2. SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Viewshed Analysis Results: Turbine Layout Option 2

CONSULTANT

YYYY-MM-DD	2023-07-07
DESIGNED	HJ
PREPARED	HJ
REVIEWED	KW
APPROVED	####

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

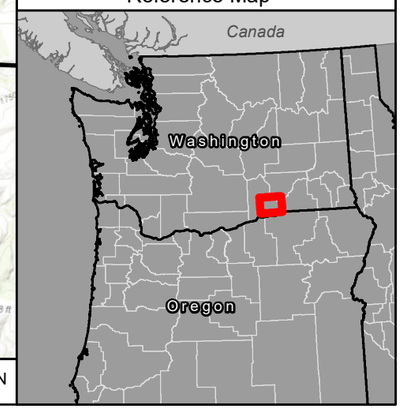
Figure 5
Viewshed Analysis Results: Western Solar Array (County Well Road)

BENTON COUNTY, WA

- Visual Receptor
- Solar Array Fence Line
- Project Lease Boundary
- Solar Array 5-mile Buffer
- Potentially Visible
- Not Visible

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

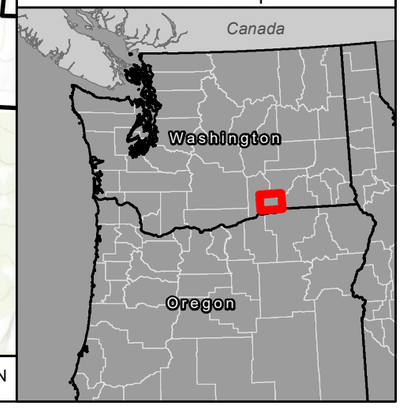
Figure 6
Viewshed Analysis Results: Western Solar Array (Sellards Road)

BENTON COUNTY, WA

- Visual Receptor
- Solar Array Fence Line
- Project Lease Boundary
- Solar Array 5-mile Buffer
- Potentially Visible
- Not Visible

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

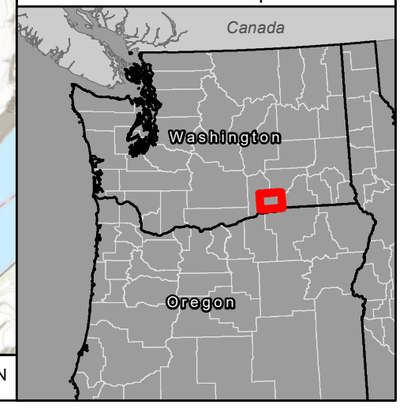
Figure 7
Viewshed Analysis Results: Eastern Solar Array (Bofer Canyon)

BENTON COUNTY, WA

- Visual Receptor
- Solar Array Fence Line
- Project Lease Boundary
- Solar Array 5-mile Buffer
- Potentially Visible
- Not Visible

TETRA TECH

Reference Map



1:90,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 8
Viewshed Analysis Results: Proposed Transmission Lines

BENTON COUNTY, WA

- Proposed Transmission Line
- Visual Receptor
- Project Lease Boundary
- 5-mile Buffer
- 10-mile Buffer
- Potentially Visible
- Not Visible

TETRA TECH

Reference Map

1:250,000 WGS 1984 UTM Zone 11N

0 2 4 8 12 16 Miles

NOT FOR CONSTRUCTION

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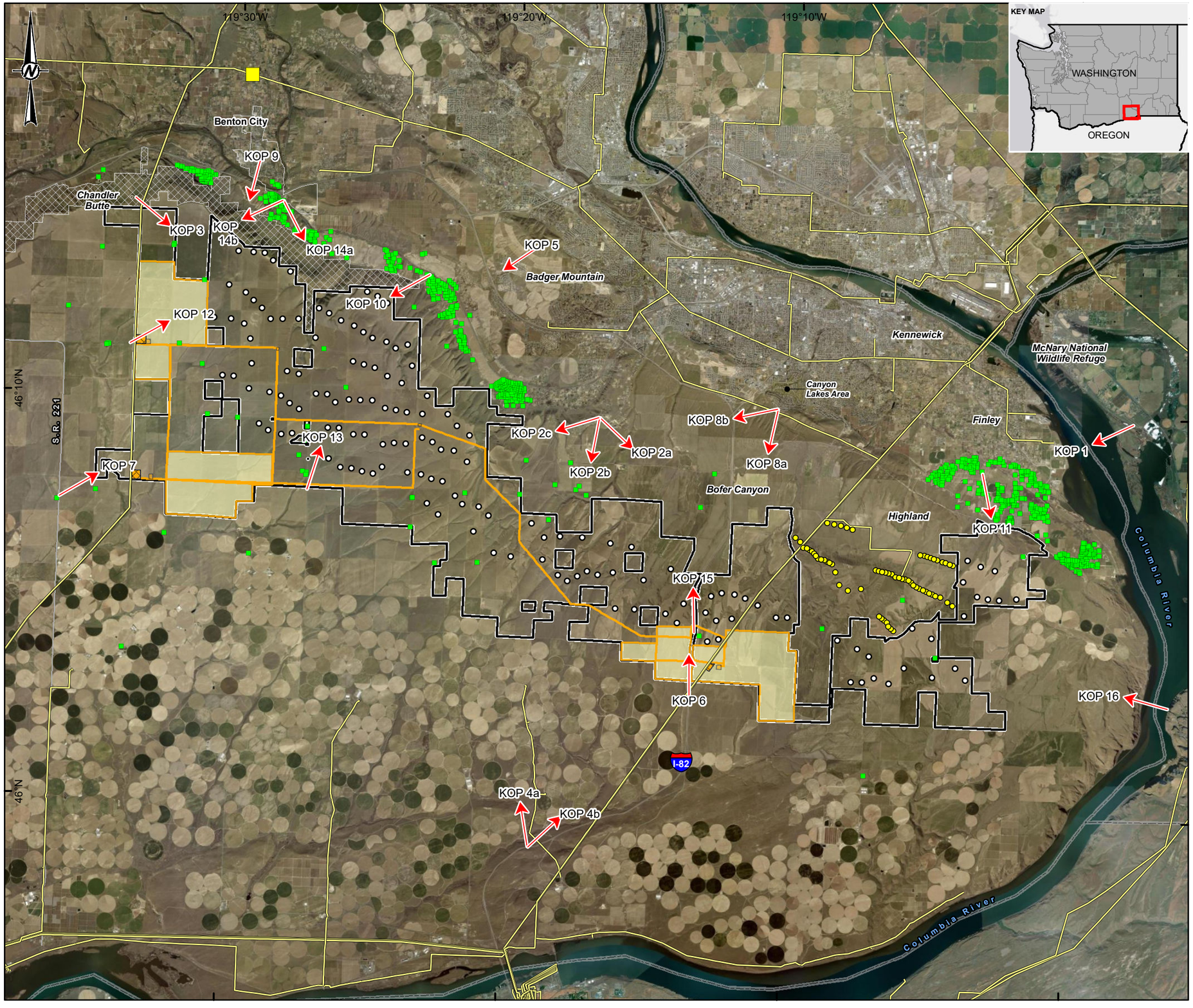

LEGEND

- Option 1 Turbine Location
- Key Observation Point (KOP) # Location
- Existing Residence
- Project Lease Boundary
- Proposed Substation
- Proposed Transmission Lines
- Solar Siting Area
- Horse Heaven Hills Recreation Area (BLM)
- Existing Turbine
- Existing Substation
- Existing Transmission Line
- State Road

0 2 4
MILES

REFERENCE(S)

1. PROJECT FEATURES PROVIDED BY EFSEC, NOV 2021
2. SERVICE LAYER CREDITS: ESRI, HERE, GARMIN, (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS, AND THE GIS USER COMMUNITY

CLIENT
State of Washington Energy Facility Site Evaluation Council

PROJECT
Horse Heaven Wind Farm

TITLE
Representative Viewpoint Locations

YYYY-MM-DD	2023-07-13
DESIGNED	HJ
PREPARED	HJ
REVIEWED	KW
APPROVED	JP

PROJECT NO.	CONTROL	REV.	FIGURE
20450841	2000	1	9

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

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ATTACHMENT B

Visual Simulations

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 1
Representative Viewpoint 1

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	244
Horizontal field of view (deg):	75
Vertical field of view (deg):	20
Max. WTGs within field of view:	244 / 150
Max. Visible WTGs at tip height:	199 / 137
Max. Visible WTGs at hub height:	148 / 107
Closest WTG (mi):	5.2 / 5.8
Furthest WTG (mi):	26.8 / 26.5
Closest Solar Array (mi):	No view
Closest Transmission Line (mi):	No view
Closest Substation / BESS (mi):	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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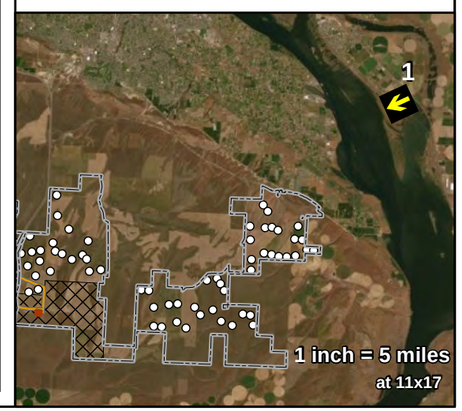
TETRA TECH



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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 2
Representative Viewpoint 2a

Existing Conditions and Project Simulations

BENTON COUNTY, WA

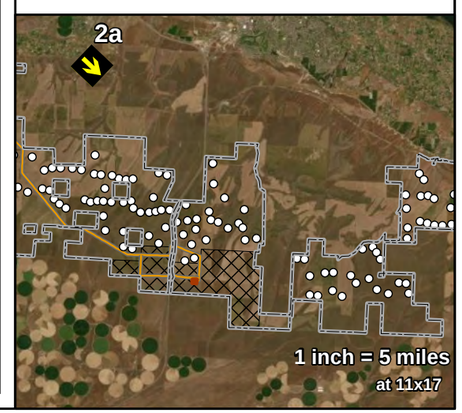
- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	132
Horizontal field of view (deg):	57
Vertical field of view (deg):	15
Max. WTGs within field of view:	75 / 38
Max. Visible WTGs at tip height:	56 / 29
Max. Visible WTGs at hub height:	50 / 24
Closest WTG (mi):	3.9 / 4.8
Furthest WTG (mi):	13.4 / 13
Closest Solar Array (mi):	No view
Closest Transmission Line (mi):	No view
Closest Substation / BESS (mi):	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 3
Representative Viewpoint 2b

Existing Conditions and Project Simulations

BENTON COUNTY, WA

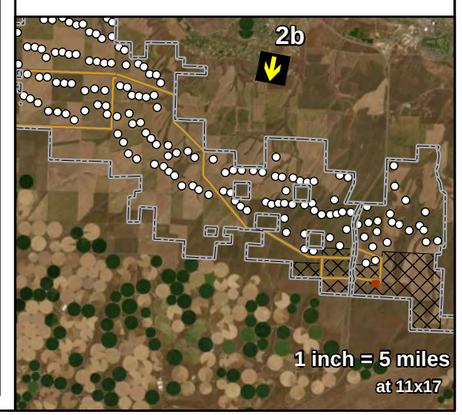
- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	189
Horizontal field of view (deg):.....	57
Vertical field of view (deg):.....	15
Max. WTGs within field of view:...	37 / 19
Max. Visible WTGs at tip height:..	36 / 19
Max. Visible WTGs at hub height:	30 / 17
Closest WTG (mi):.....	3 / 3.5
Furthest WTG (mi):.....	6.2 / 5.9
Closest Solar Array (mi):.....	No view
Closest Transmission Line (mi):.....	No view
Closest Substation / BESS (mi):..	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 4
Representative Viewpoint 2c

Existing Conditions and Project Simulations

BENTON COUNTY, WA

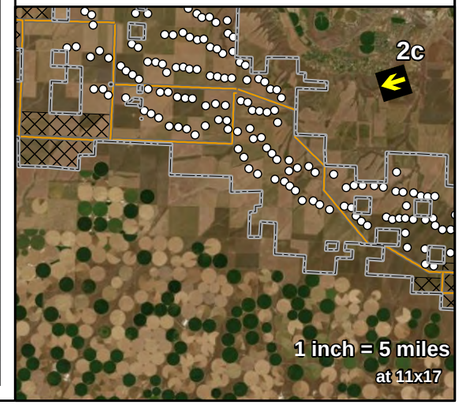
- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	251
Horizontal field of view (deg):.....	56
Vertical field of view (deg):.....	15
Max. WTGs within field of view:...	85 / 60
Max. Visible WTGs at tip height:..	46 / 39
Max. Visible WTGs at hub height:	24 / 21
Closest WTG (mi):.....	3.7 / 3.7
Furthest WTG (mi):.....	10.8 / 10.8
Closest Solar Array (mi):.....	No view
Closest Transmission Line (mi):.....	3.4
Closest Substation / BESS (mi):..	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 5-1a
Representative Viewpoint 3

Existing Conditions - Revised*

BENTON COUNTY, WA

As Taken (April 2022)

Sky Replacement and De-hazing

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

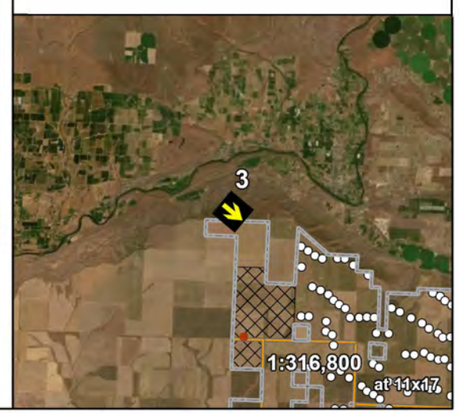
View direction (deg): 128
Horizontal field of view (deg):..... 56
Vertical field of view (deg):..... 15

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 5-1b
Representative Viewpoint 3

Existing Conditions and Project Simulations - Revised*

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

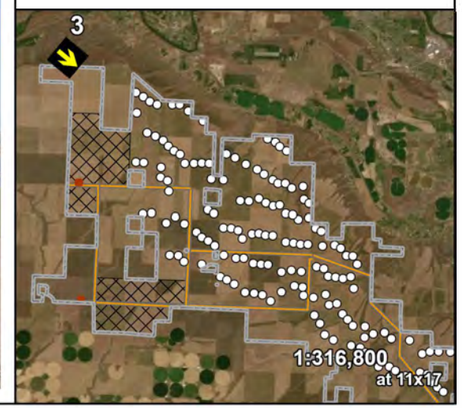
View direction (deg):	128
Horizontal field of view (deg):	56
Vertical field of view (deg):	15
Max. WTGs within field of view:	244 / 150
Max. Visible WTGs at tip height:	239 / 150
Max. Visible WTGs at hub height:	219 / 139
Closest WTG (mi):	2.5 / 2.8
Furthest WTG (mi):	28.1 / 27.6
Closest Solar Array (mi):	2.1
Closest Transmission Line (mi):	4.2
Closest Substation / BESS (mi):	Not in frame

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 6
Representative Viewpoint 4a

Existing Conditions and Project Simulations

BENTON COUNTY, WA

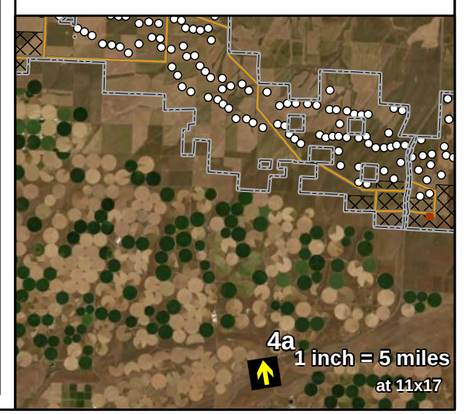
- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	350
Horizontal field of view (deg):	57
Vertical field of view (deg):	15
Max. WTGs within field of view:	163 / 110
Max. Visible WTGs at tip height:	51 / 40
Max. Visible WTGs at hub height:	34 / 26
Closest WTG (mi):	7.3 / 7.3
Furthest WTG (mi):	19.6 / 19.4
Closest Solar Array (mi):	Not in frame
Closest Transmission Line (mi):	6.5
Closest Substation / BESS (mi):	Not in frame

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 7
Representative Viewpoint 4b

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	46
Horizontal field of view (deg):	57
Vertical field of view (deg):	15
Max. WTGs within field of view:	85 / 42
Max. Visible WTGs at tip height:	66 / 37
Max. Visible WTGs at hub height:	58 / 33
Closest WTG (mi):	7 / 7.3
Furthest WTG (mi):	16.2 / 15.6
Closest Solar Array (mi):	6.0
Closest Transmission Line (mi):	6.5
Closest Substation / BESS (mi):	7.3

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

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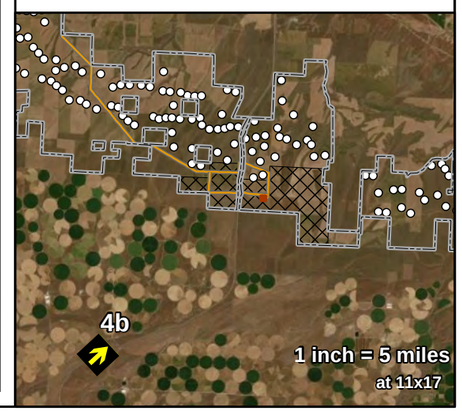

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As Taken (April 2022)

Sky Replacement and De-hazing

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 8-1a
Representative Viewpoint 5

Existing Conditions - Revised*

BENTON COUNTY, WA

Viewpoint Location and Photo Direction
Project Lease Boundary
Proposed Turbine Location
Proposed Transmission Line

View direction (deg): 236
Horizontal field of view (deg):..... 58
Vertical field of view (deg):..... 15

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

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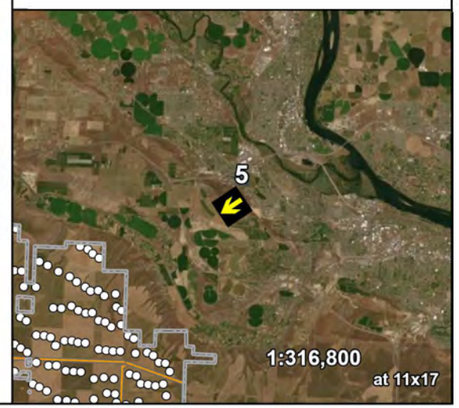

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 8-1b
Representative Viewpoint 5

Existing Conditions and Project Simulations - Revised*

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	236
Horizontal field of view (deg):	58
Vertical field of view (deg):	15
Max. WTGs within field of view:	101 / 76
Max. Visible WTGs at tip height:	101 / 76
Max. Visible WTGs at hub height:	101 / 76
Closest WTG (mi):	4.7 / 4.7
Furthest WTG (mi):	9.9 / 9.8
Closest Solar Array (mi):	No view
Closest Transmission Line (mi):	No view
Closest Substation / BESS (mi):	No view

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

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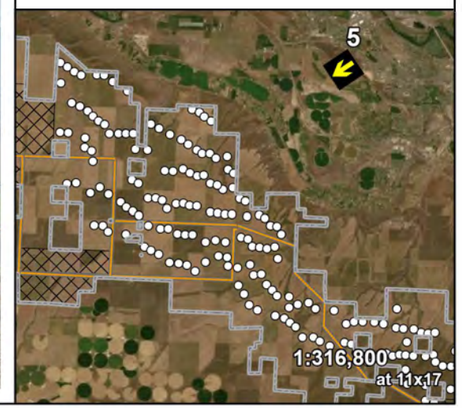

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Horse Heaven Wind Project

Figure 9-1a
Representative Viewpoint 6

Existing Conditions - Revised*

BENTON COUNTY, WA

As Taken (April 2022)

Sky Replacement and De-hazing

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg): 360
Horizontal field of view (deg):..... 60
Vertical field of view (deg):..... 15

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

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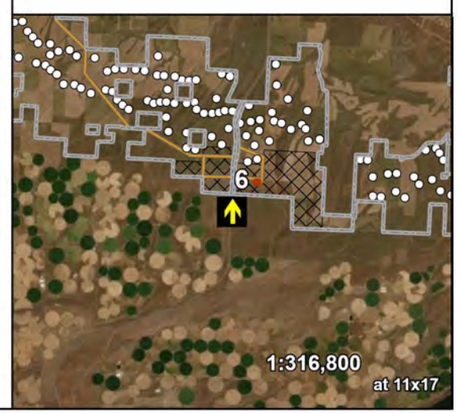

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 9-1b
Representative Viewpoint 6

Existing Conditions and Project Simulations - Revised*

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	360
Horizontal field of view (deg):	60
Vertical field of view (deg):	15
Max. WTGs within field of view:	41 / 17
Max. Visible WTGs at tip height:	37 / 17
Max. Visible WTGs at hub height:	29 / 17
Closest WTG (mi):	1.7 / 1.8
Furthest WTG (mi):	5.7 / 5
Closest Solar Array (mi):	0.6
Closest Transmission Line (mi):	1.2
Closest Substation / BESS (mi):	Not in frame

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

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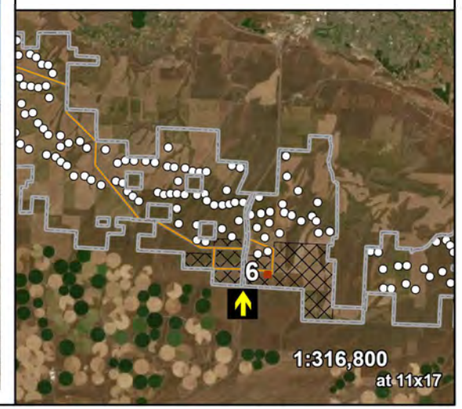

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As Taken (April 2022)

Sky Replacement and De-hazing

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 10-1a
Representative Viewpoint 7

Existing Conditions - Revised*

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg): 60
Horizontal field of view (deg):..... 58
Vertical field of view (deg):..... 15

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 10-1b
Representative Viewpoint 7

Existing Conditions and Project Simulations - Revised*

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

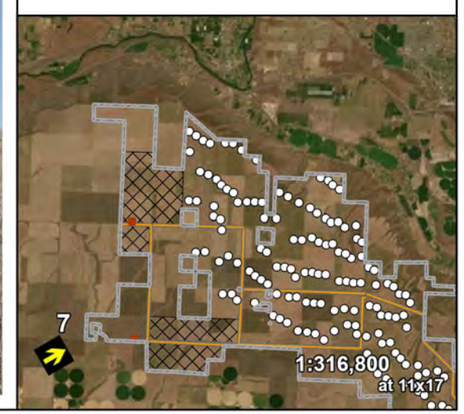
View direction (deg):	60
Horizontal field of view (deg):	58
Vertical field of view (deg):	15
Max. WTGs within field of view:	122 / 90
Max. Visible WTGs at tip height:	118 / 87
Max. Visible WTGs at hub height:	110 / 85
Closest WTG (mi):	5.8 / 5.8
Furthest WTG (mi):	11.9 / 11.8
Closest Solar Array (mi):	3.1
Closest Transmission Line (mi):	2.2
Closest Substation / BESS (mi):	No view

* Original photos and simulations submitted in 2021

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 11
Representative Viewpoint 8a

Existing Conditions and Project Simulations

BENTON COUNTY, WA

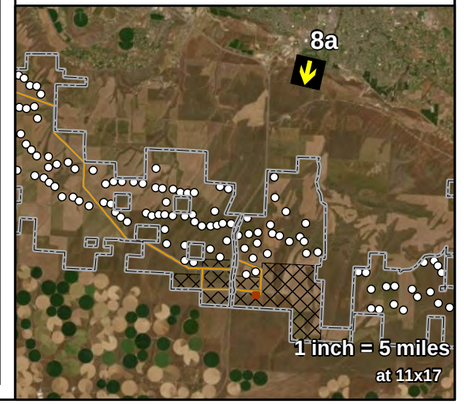
- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	193
Horizontal field of view (deg):.....	57
Vertical field of view (deg):.....	15
Max. WTGs within field of view:...	43 / 20
Max. Visible WTGs at tip height:..	40 / 19
Max. Visible WTGs at hub height:	37 / 15
Closest WTG (mi):.....	3.6 / 5.4
Furthest WTG (mi):.....	7.4 / 7.3
Closest Solar Array (mi):.....	No view
Closest Transmission Line (mi):.....	No view
Closest Substation / BESS (mi):..	No view

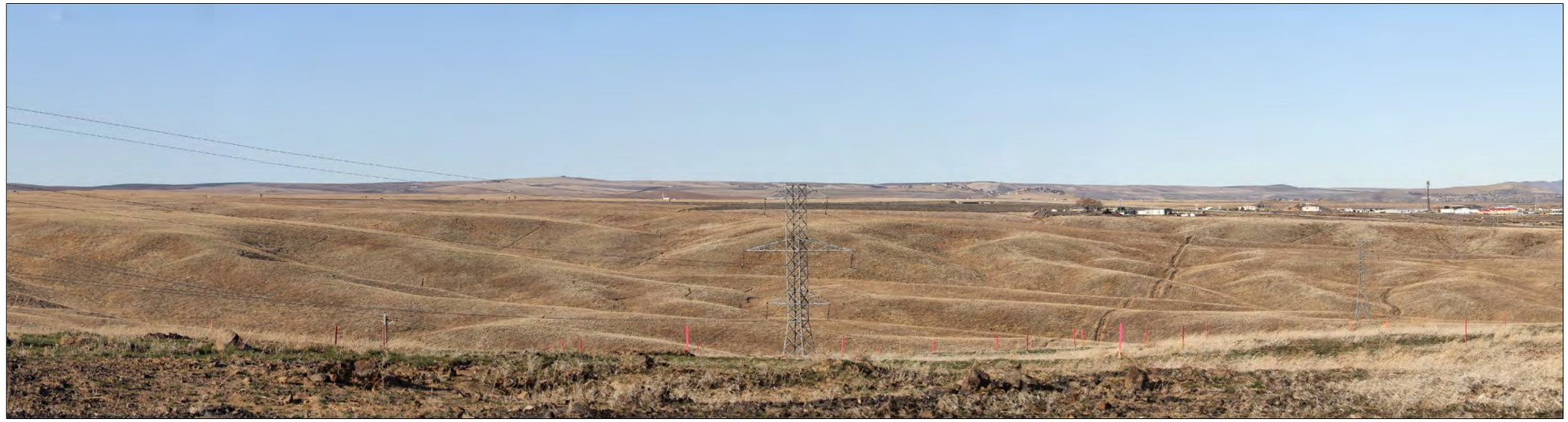
To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

NOT FOR CONSTRUCTION

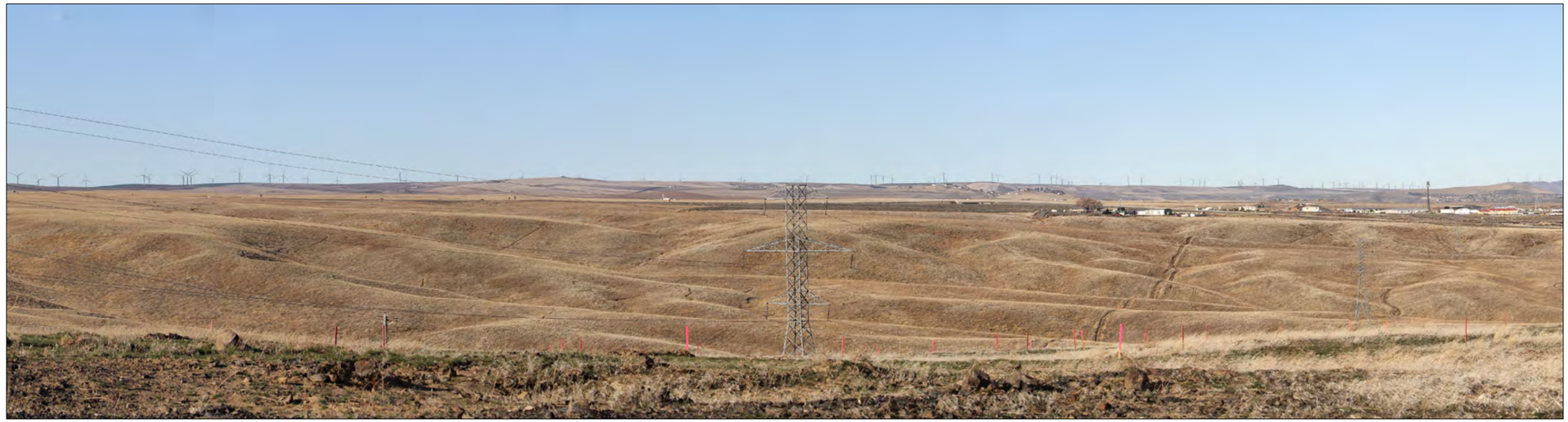
TETRA TECH



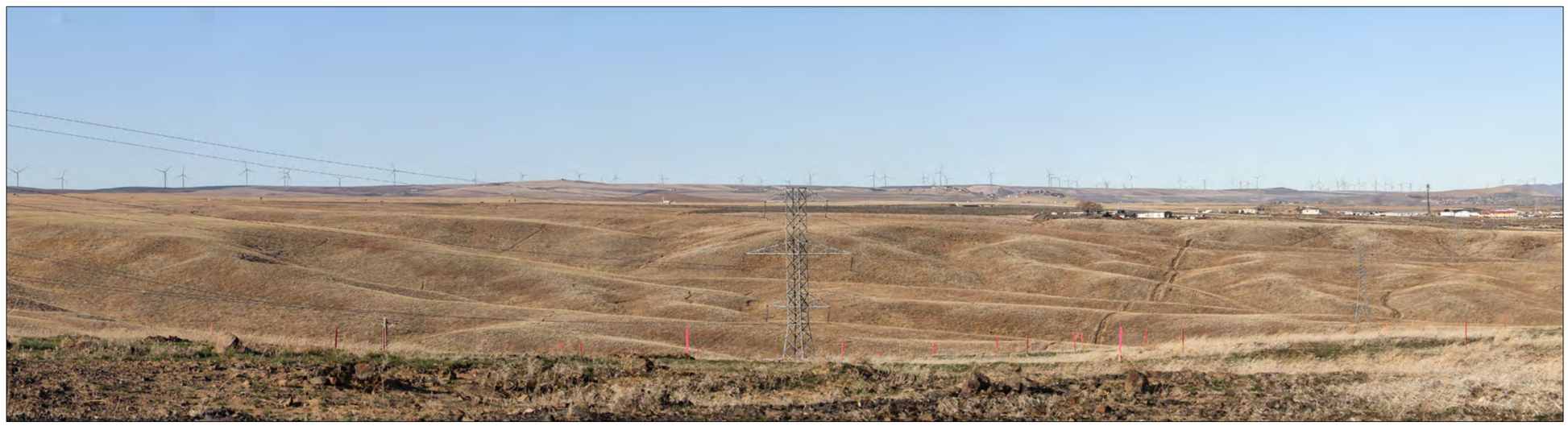
Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 12
Representative Viewpoint 8b

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	258
Horizontal field of view (deg):	57
Vertical field of view (deg):	15
Max. WTGs within field of view:	153 / 105
Max. Visible WTGs at tip height:	137 / 101
Max. Visible WTGs at hub height:	102 / 83
Closest WTG (mi):	5.9 / 6.1
Furthest WTG (mi):	16.8 / 16.6
Closest Solar Array (mi):	No view
Closest Transmission Line (mi):	No view
Closest Substation / BESS (mi):	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 8 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 8 inches from the eye.

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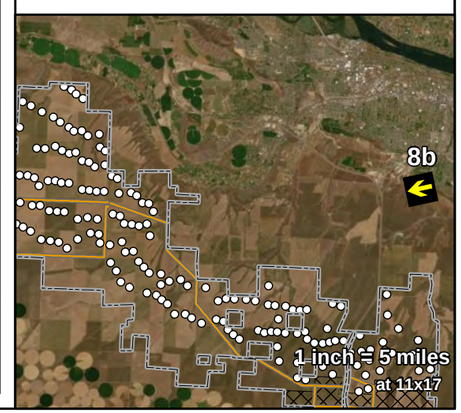

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 13
Representative Viewpoint 9

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	195
Horizontal field of view (deg):	73
Vertical field of view (deg):	19
Max. WTGs within field of view:	61 / 47
Max. Visible WTGs at tip height:	5 / 5
Max. Visible WTGs at hub height:	4 / 4
Closest WTG (mi):	2.7 / 2.7
Furthest WTG (mi):	9.7 / 9.6
Closest Solar Array (mi):	No view
Closest Transmission Line (mi):	No view
Closest Substation / BESS (mi):	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

NOT FOR CONSTRUCTION

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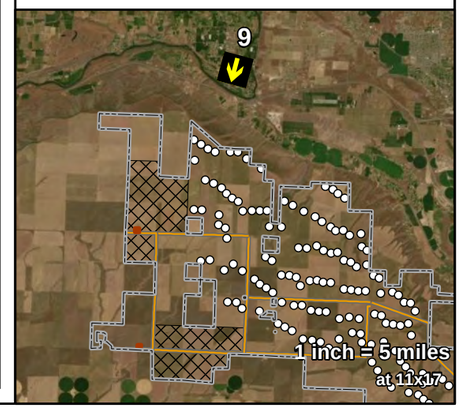

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 14
Representative Viewpoint 10

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	241
Horizontal field of view (deg):.....	76
Vertical field of view (deg):.....	20
Max. WTGs within field of view:...	79 / 59
Max. Visible WTGs at tip height:..	15 / 15
Max. Visible WTGs at hub height:	9 / 7
Closest WTG (mi):.....	1.5 / 1.5
Furthest WTG (mi):.....	6.6 / 6.6
Closest Solar Array (mi):.....	No view
Closest Transmission Line (mi):.....	No view
Closest Substation / BESS (mi):..	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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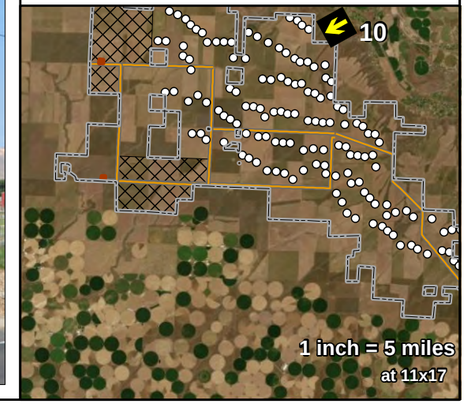

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 15
Representative Viewpoint 11

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Solar Siting Area

View direction (deg):	169
Horizontal field of view (deg):.....	73
Vertical field of view (deg):.....	19
Max. WTGs within field of view:...	33 / 47
Max. Visible WTGs at tip height:..	23 / 12
Max. Visible WTGs at hub height:	19 / 11
Closest WTG (mi):.....	2 / 2.5
Furthest WTG (mi):.....	6.6 / 6.6
Closest Solar Array (mi):.....	No view
Closest Transmission Line (mi):.....	No view
Closest Substation / BESS (mi):..	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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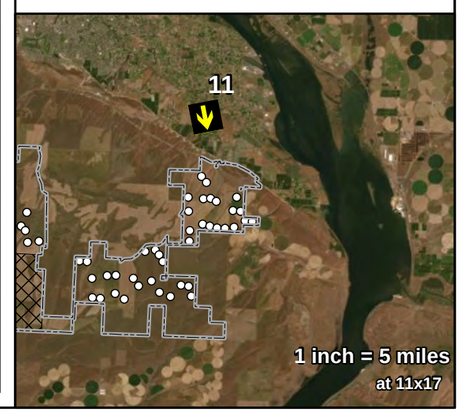

Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 16
Representative Viewpoint 12

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	61
Horizontal field of view (deg):	73
Vertical field of view (deg):	19
Max. WTGs within field of view:	57 / 40
Max. Visible WTGs at tip height:	53 / 40
Max. Visible WTGs at hub height:	52 / 37
Closest WTG (mi):	2.5 / 2.5
Furthest WTG (mi):	8.7 / 8.6
Closest Solar Array (mi):	0.2
Closest Transmission Line (mi):	0.2
Closest Substation / BESS (mi):	0.5

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

NOT FOR CONSTRUCTION

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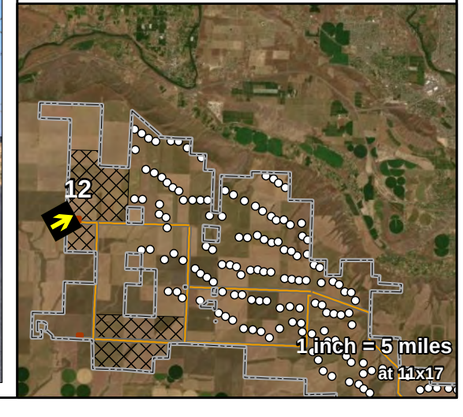

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 17
Representative Viewpoint 13

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	18
Horizontal field of view (deg):	73
Vertical field of view (deg):	19
Max. WTGs within field of view:	73 / 54
Max. Visible WTGs at tip height:	69 / 52
Max. Visible WTGs at hub height:	65 / 51
Closest WTG (mi):	1.1 / 1.1
Furthest WTG (mi):	7.3 / 7.1
Closest Solar Array (mi):	Not in frame
Closest Transmission Line (mi):	0.2
Closest Substation / BESS (mi):	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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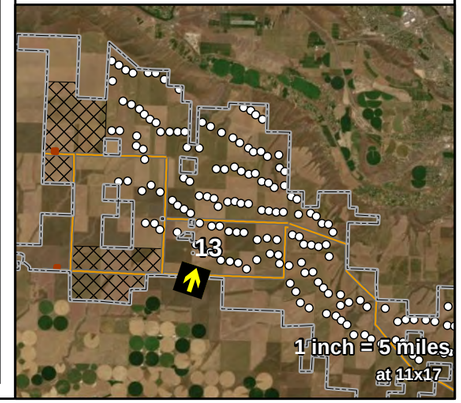

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As Taken

Sky Replacement and De-hazing

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 18a
Representative Viewpoint 14a

Existing Conditions

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	153
Horizontal field of view (deg):	93
Vertical field of view (deg):	24

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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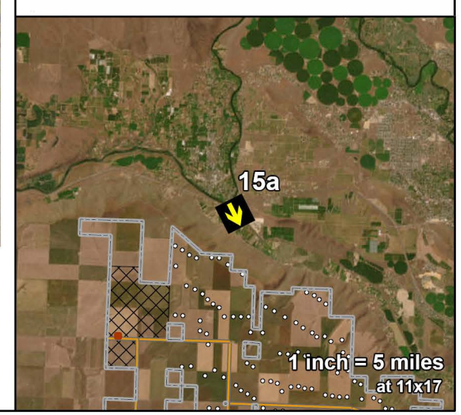

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 18b
Representative Viewpoint 14a

Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	153
Horizontal field of view (deg):.....	93
Vertical field of view (deg):.....	24
Max. WTGs within field of view:...	234 / 144
Max. Visible WTGs at tip height:..	28 / 25
Max. Visible WTGs at hub height:	12 / 14
Closest WTG (mi):.....	1.7 / 1.7
Furthest WTG (mi):.....	8.6 / 8.6
Closest Solar Array (mi):.....	No view
Closest Transmission Line (mi):.....	No view
Closest Substation / BESS (mi):..	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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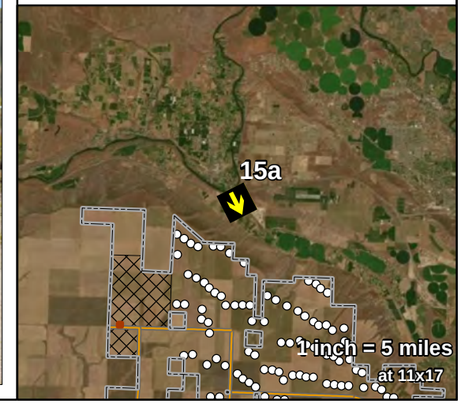
TETRA TECH



Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 19a
Representative Viewpoint 14b

Existing Conditions

BENTON COUNTY, WA

As Taken

Sky Replacement and De-hazing

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg): 245
Horizontal field of view (deg):..... 93
Vertical field of view (deg):..... 24

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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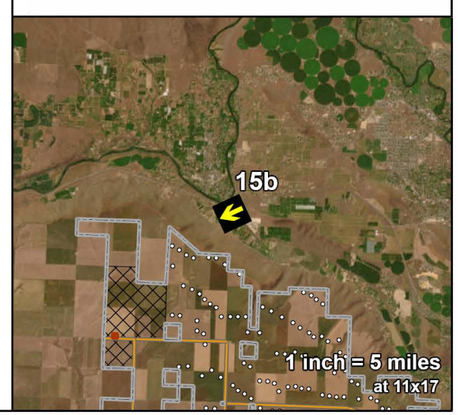

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Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

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Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 19b
Representative Viewpoint 14b

Project Simulations

BENTON COUNTY, WA

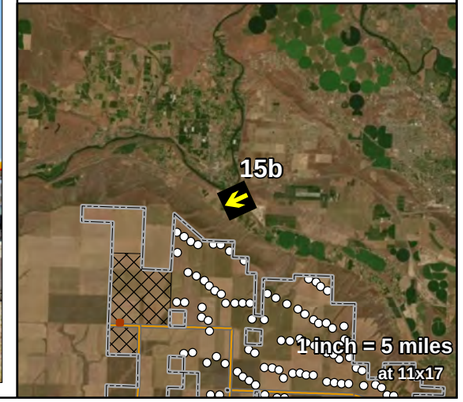
- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	245
Horizontal field of view (deg):.....	93
Vertical field of view (deg):.....	24
Max. WTGs within field of view:...	12 / 8
Max. Visible WTGs at tip height:..	2 / 2
Max. Visible WTGs at hub height:	2 / 2
Closest WTG (mi):.....	1.7 / 1.7
Furthest WTG (mi):.....	1.7 / 1.8
Closest Solar Array (mi):.....	No view
Closest Transmission Line (mi):.....	No view
Closest Substation / BESS (mi):..	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



Existing Conditions

Project Simulation Option 1
244 WTG

Project Simulation Option 2
150 WTG

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 20
Representative Viewpoint 15

Existing Conditions and Project Simulations

BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	359
Horizontal field of view (deg):	73
Vertical field of view (deg):	19
Max. WTGs within field of view:	18 / 6
Max. Visible WTGs at tip height:	11 / 6
Max. Visible WTGs at hub height:	10 / 5
Closest WTG (mi):	0.7 / 0.7
Furthest WTG (mi):	1.9 / 1.9
Closest Solar Array (mi):	No view
Closest Transmission Line (mi):	0.1
Closest Substation / BESS (mi):	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

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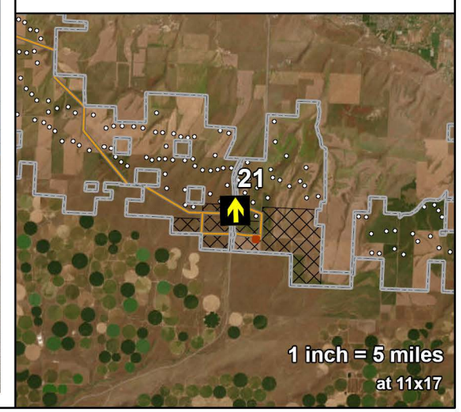
TETRA TECH



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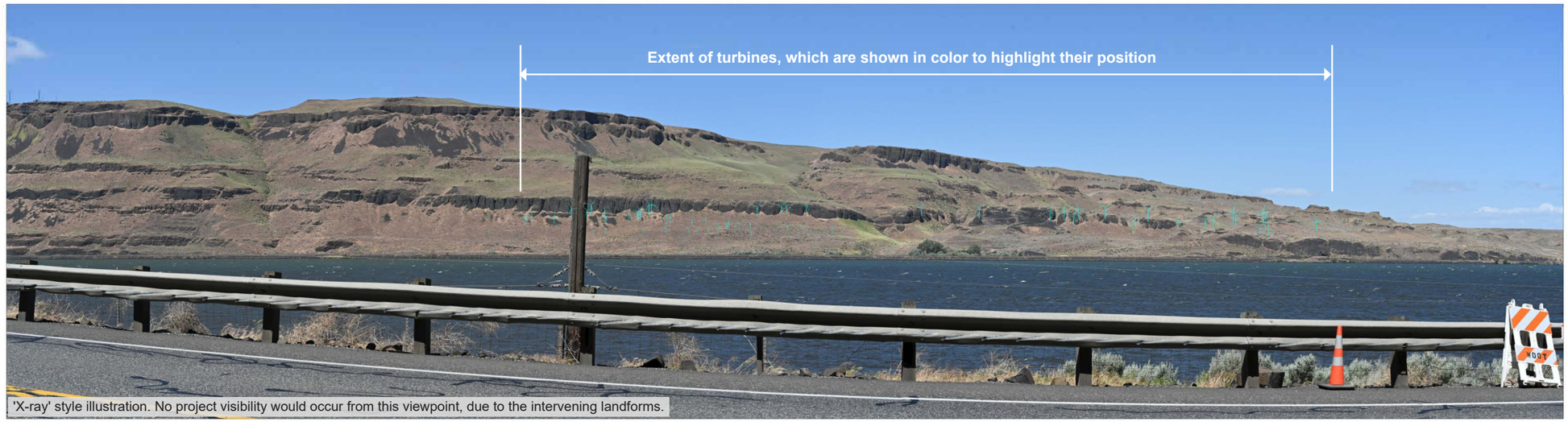
Existing Conditions

Project Simulation Option 1
244 WTG



'X-ray' style illustration. No project visibility would occur from this viewpoint, due to the intervening landforms.

Project Simulation Option 2
150 WTG

'X-ray' style illustration. No project visibility would occur from this viewpoint, due to the intervening landforms.

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 21
Representative Viewpoint 16
Existing Conditions and Project Simulations

BENTON COUNTY, WA

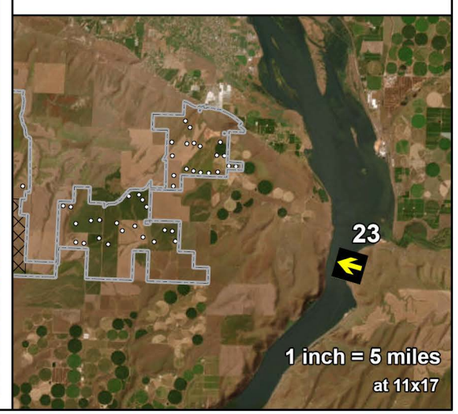
- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Solar Siting Area

View direction (deg):	286
Horizontal field of view (deg):	73
Vertical field of view (deg):	20
Max. WTGs within field of view:	244 / 150
Max. Visible WTGs at tip height:	0 / 0
Max. Visible WTGs at hub height:	0 / 0
Closest WTG (mi):	No view
Furthest WTG (mi):	No view
Closest Solar Array (mi):	No view
Closest Transmission Line (mi):	No view
Closest Substation / BESS (mi):	No view

To approximate how the project will appear to a viewer in the natural setting, this sheet should be printed at 11 x 17 inches, full size with no scaling, and viewed at 6 inches from the eye. If viewed on a computer monitor, the document should be scaled at 100% and viewed at 6 inches from the eye.

NOT FOR CONSTRUCTION

TETRA TECH



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APPENDIX 3.16-1

Horse Heaven Wind Farm's Proximity to other Environmental Stressors

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Proximity to other Environmental Stressors

Table 3.16-1A provides additional information regarding additional environmental justice indexes, including traffic proximity, superfund proximity, hazardous waste proximity, underground storage tanks counts, and wastewater discharge toxicity, for the census block groups that intersect with or are adjacent to the Lease Area in the Horse Heaven Wind Farm study area.

According to the U.S. Environmental Protection Agency Environmental Justice Screening and Mapping Tool (EJ Screen) data, the "Value" and "State Average" columns in **Table 3.16-1A** for each of these environmental stressors are defined as follows:

- Traffic proximity - Count of vehicles (annual daily traffic) at major roads within 500 meters, divided by distance in meters (not kilometers [km])
- Superfund proximity - Count of proposed superfund sites within 5 km (or nearest one beyond 5 km), each divided by distance in kilometers
- Hazardous waste proximity - Count of hazardous waste facilities within 5 km (or nearest beyond 5 km), each divided by distance in kilometers
- Underground storage tanks (USTs) - Count of leaking UST (multiplied by a factor of 7.7) and the number of USTs within a 1,500-foot buffered block group divided by the area of the combined census blocks in square kilometers
- Wastewater discharge – Risk Screening Environmental Indicators modeled toxic concentrations at stream segments within 500 meters, divided by distance in kilometers

Table 3.16-1A: Environmental Justice Indexes for the Census Block Groups that Intersect with or Located Adjacent to Project Lease Boundary

Environmental Stressors	Census Block Group	Value	State Average
Traffic Proximity (daily traffic count/meter distance to road)	Census Tract 108.07, Block Group 1	83	740
	Census Tract 108.14, Block Group 1	57	
	Census Tract 115.01, Block Group 1	2.3	
	Census Tract 115.06, Block Group 1	8.9	
	Census Tract 116, Block Group 1	3.4	
	Census Tract 118.01, Block Group 3	89	
Superfund Proximity (site count/km distance)	Census Tract 108.07, Block Group 1	0.061	0.18
	Census Tract 108.14, Block Group 1	0.048	
	Census Tract 115.01, Block Group 1	0.078	
	Census Tract 115.06, Block Group	0.077	
	Census Tract 116, Block Group 1	0.055	
	Census Tract 118.01, Block Group 3	0.035	

Table 3.16-1A: Environmental Justice Indexes for the Census Block Groups that Intersect with or Located Adjacent to Project Lease Boundary

Environmental Stressors	Census Block Group	Value	State Average
Hazardous Waste Proximity (facility count/ km distance)	Census Tract 108.07, Block Group 1	0.26	2.2
	Census Tract 108.14, Block Group 1	0.13	
	Census Tract 115.01, Block Group 1	0.9	
	Census Tract 115.06, Block Group 1	0.28	
	Census Tract 116, Block Group 1	0.068	
	Census Tract 118.01, Block Group 3	0.082	
Underground Storage Tanks (USTs) (count/km^2)	Census Tract 108.07, Block Group 1	0.058	6.3
	Census Tract 108.14, Block Group 1	0.086	
	Census Tract 115.01, Block Group 1	0	
	Census Tract 115.06, Block Group 1	0.03	
	Census Tract 116, Block Group 1	0.0058	
	Census Tract 118.01, Block Group 3	0.01	
Wastewater Discharge (toxicity-weighted concentration/km distance)	Census Tract 108.07, Block Group 1	4.4E-06	0.021
	Census Tract 108.14, Block Group 1	N/A	
	Census Tract 115.01, Block Group 1	0.0012	
	Census Tract 115.06, Block Group 1	N/A	
	Census Tract 116, Block Group 1	0.00021	
	Census Tract 118.01, Block Group 3	4.3E-08	

Source: EJ Screen (Environmental Justice Screening and Mapping Tool). 2022. Accessed September 20, 2022. https://www.epa.gov/ejscreen.
km = kilometers; km^2 = square kilometers; N/A = information not available

APPENDIX 4.3-1

Emission Calculations

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Horse Heaven Wind Farm LLC's Emission Calculations

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Horse Heaven Wind Farm - Construction Emissions
Emission Summary by Phase and Calendar Year

Emission Totals by Phase	VOC tons	NO_X tons	CO tons	PM_{10} tons	$PM_{2.5}$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Phase 1 Wind	3.03	24.66	17.83	1.34	1.29	0.03	0.40	9,093.78	0.29	0.17	9,150.72
Phase 1 Solar	2.12	14.67	9.94	1.15	1.11	0.02	0.39	4,794.30	0.16	0.10	4,827.91
Phase 1 Battery	0.27	2.29	1.42	0.12	0.11	2.51E-03	0.03	806.49	0.03	1.37E-02	811.34
Phase 1 total	**5.43**	**41.63**	**29.19**	**2.61**	**2.51**	**0.05**	**0.82**	**14,694.57**	**0.48**	**0.28**	**14,789.97**
Phase 2a Wind	3.47	29.48	18.44	1.68	1.62	0.04	0.53	11,198.93	0.33	0.22	11,272.03
Phase 2a Solar	1.92	13.23	8.75	1.05	1.01	1.43E-02	0.36	4,547.13	0.15	0.10	4,579.36
Phase 2a Battery	0.25	2.12	1.27	0.11	0.11	2.47E-03	0.03	797.29	0.03	1.37E-02	802.14
Phase 2a total	**5.64**	**44.82**	**28.46**	**2.84**	**2.73**	**0.05**	**0.92**	**16,543.35**	**0.51**	**0.33**	**16,653.53**
Phase 2b Wind	4.27	36.73	22.69	2.04	1.96	0.04	0.64	13,857.79	0.41	0.27	13,947.13
Phase 2b total	**4.27**	**36.73**	**22.69**	**2.04**	**1.96**	**0.04**	**0.64**	**13,857.79**	**0.41**	**0.27**	**13,947.13**
O&M	0.07	0.28	0.62	9.43E-03	8.65E-03	5.46E-04	0	134.31	1.22E-02	1.00E-03	134.91
O&M total	**0.07**	**0.28**	**0.62**	**9.43E-03**	**8.65E-03**	**5.46E-04**	**0**	**134.31**	**1.22E-02**	**1.00E-03**	**134.91**

Emission Totals by Calendar Year	VOC tons	NO_X tons	CO tons	PM_{10} tons	$PM_{2.5}$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
2023 (Phase 1)	5.43	41.63	29.19	2.61	2.51	0.05	0.82	14,694.57	0.48	0.28	14,789.97
2024 (Maximum of Phase 2a or 2b)	5.64	44.82	28.46	2.84	2.73	0.05	0.92	16,543.35	0.51	0.33	16,653.53
2025 and onward (O&M)	0.07	0.28	0.62	9.43E-03	8.65E-03	5.46E-04	0	134.31	1.22E-02	1.00E-03	134.91

Horse Heaven Wind Farm - Construction Emissions
Summary of Construction Schedule by Phase

Proposed Phase 1 Construction Schedule

Task	Start	Finish
Road Construction	1/13/2023	5/3/2023
Wind Turbine Foundations	1/27/2023	4/26/2023
Wind Turbine Assembly	5/4/2023	8/21/2023
Wind Plant Commissioning	7/31/2023	10/30/2023
Solar Array Construction	1/1/2023	10/31/2023
Electrical System Installation	2/15/2023	9/1/2023
Battery Energy Storage System	5/4/2023	9/1/2023
Solar Plant Commissioning	9/1/2023	11/30/2023
Electrical System and Substation	2/15/2023	7/28/2023
O&M Building	3/17/2023	6/28/2023
Phase 1 Final Commercial Operation Date	**11/30/2023**	**-**

Proposed Phase 2a Construction Schedule

Task	Start	Finish
Road Construction	1/13/2024	5/3/2024
Wind Turbine Foundations	1/27/2024	4/26/2024
Wind Turbine Assembly	5/4/2024	8/21/2024
Wind Plant Commissioning	7/31/2024	10/30/2024
Solar Array Construction	1/1/2024	10/31/2024
Electrical System Installation	2/15/2024	9/1/2024
Battery Energy Storage System	5/4/2024	9/1/2024
Solar Plant Commissioning	9/1/2024	11/30/2024
Electrical System and Substation	2/15/2024	7/28/2024
O&M Facilities	3/17/2024	6/28/2024
Transmission Line Construction	1/1/2024	8/1/2024
Phase 2a Final Commercial Operation Date	**11/30/2024**	**-**

Proposed Phase 2b Construction Schedule

Task	Start	Finish
Road Construction	1/13/2024	5/3/2024
Wind Turbine Foundations	1/27/2024	4/26/2024
Electrical System and Substation	2/15/2024	7/28/2024
Wind Turbine Assembly	5/4/2024	8/21/2024
O&M Facilities	3/17/2024	6/28/2024
Transmission Line Construction	1/1/2024	8/1/2024
Plant Commissioning	7/31/2024	10/30/2024
Phase 2b Final Commercial Operation Date	**10/30/2024**	**-**

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC application for site certification.

Horse Heaven Wind Farm - Construction Emissions
Phase 1 Wind (350 MW)

Construction Equipment	Source Category	HP per unit	Fuel Type	Emiss. Factor ID	hrs per day	Load Factor	Total Equip. Months	Fuel Use	Emissions										
								gal	VOC tons	NO_x tons	CO tons	PM_{10} tons	$PM_{2.5}$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	107	12	59%	24	27,989	0.02	0.21	0.07	0.02	1.47E-02	1.14E-03	4.11E-03	422.26	1.17E-03	1.08E-02	425.49
Excavator / Backhoe	2270002036	150	diesel	108	12	59%	24	20,993	1.05E-02	0.21	0.07	0.02	0.02	8.49E-04	2.53E-03	316.70	8.82E-04	8.06E-03	319.13
Loader / Skid Steer loader	2270002072	150	diesel	116	12	21%	24	8,679	0.22	1.16	0.71	0.13	0.13	4.81E-04	0.05	130.94	1.11E-02	3.33E-03	132.21
Motor grader	2270002048	100	diesel	110	12	59%	24	13,994	1.09E-02	0.18	0.07	0.02	0.02	5.76E-04	2.62E-03	211.12	9.21E-04	5.38E-03	212.75
Vibratory Roller	2270002015	75	diesel	114	12	59%	18	8,741	1.04E-02	0.27	0.10	1.27E-02	1.23E-02	3.61E-04	2.51E-03	131.87	7.68E-04	3.36E-03	132.89
Dump / Belly Truck	-	-	diesel	302	-	-	72	12,804	0.03	0.48	0.20	1.31E-02	1.21E-02	4.87E-04	-	144.10	3.21E-03	3.13E-04	144.27
Water Truck	-	-	diesel	304	-	-	48	4,963	0.02	0.11	0.07	2.48E-03	2.28E-03	1.87E-04	-	55.85	8.11E-03	3.24E-04	56.15
Fuel Truck	-	-	diesel	304	-	-	12	1,241	4.78E-03	0.03	0.02	6.19E-04	5.70E-04	4.68E-05	-	13.96	2.03E-03	8.09E-05	14.04
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	106	12	43%	12	10,089	1.18E-02	0.14	0.03	6.58E-03	6.39E-03	4.19E-04	2.84E-03	152.20	8.21E-04	3.88E-03	153.37
Concrete pump truck	2270002042	200	diesel	105	12	43%	8	6,713	0.07	0.90	0.22	0.04	0.04	3.72E-04	0.02	101.28	3.70E-03	2.58E-03	102.14
Concrete Truck	2270002042	150	diesel	104	12	43%	64	40,268	0.50	5.77	1.49	0.31	0.30	2.23E-03	0.12	607.50	0.03	0.02	612.76
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	16	13,995	6.99E-03	0.14	0.05	1.06E-02	1.02E-02	5.66E-04	1.69E-03	211.13	5.88E-04	5.38E-03	212.75
Forklifts	2270003020	75	diesel	109	12	59%	12	5,828	1.35E-03	0.13	1.19E-02	2.07E-03	2.01E-03	2.32E-04	3.25E-04	87.93	1.02E-04	2.24E-03	88.60
Skid Steer loader	2270002072	150	diesel	116	12	21%	8	2,893	0.07	0.39	0.24	0.04	0.04	1.60E-04	0.02	43.65	3.69E-03	1.11E-03	44.07
Dump Truck	-	-	diesel	302	-	-	24	4,268	9.13E-03	0.16	0.07	4.38E-03	4.03E-03	1.62E-04	-	48.03	1.07E-03	1.04E-04	48.09
Transportation Trucks - materials	-	-	diesel	301	-	-	24	4,080	5.47E-03	0.12	0.06	2.28E-03	2.10E-03	1.54E-04	-	45.92	5.77E-04	5.18E-05	45.95
Water Truck	-	-	diesel	304	-	-	12	1,241	4.78E-03	0.03	0.02	6.19E-04	5.70E-04	4.68E-05	-	13.96	2.03E-03	8.09E-05	14.04
Fuel Truck	-	-	diesel	304	-	-	8	827	3.19E-03	0.02	1.13E-02	4.13E-04	3.80E-04	3.12E-05	-	9.31	1.35E-03	5.39E-05	9.36
Electrical																			
Boom Truck	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Fork Truck for Spool Offload	2270003020	75	diesel	109	12	59%	12	5,828	1.35E-03	0.13	1.19E-02	2.07E-03	2.01E-03	2.32E-04	3.25E-04	87.93	1.02E-04	2.24E-03	88.60
Man Lift Bucket	2270003010	150	diesel	101	12	21%	12	4,353	0.04	0.26	0.13	0.03	0.03	2.02E-04	9.51E-03	65.67	2.17E-03	1.67E-03	66.23
Trencher	2270002030	200	diesel	119	12	59%	12	13,991	0.03	0.34	0.11	0.02	0.02	6.02E-04	7.03E-03	211.07	1.96E-03	5.37E-03	212.72
Excavators / Backhoes	2270002036	150	diesel	108	12	59%	12	10,496	5.24E-03	0.11	0.03	7.92E-03	7.68E-03	4.24E-04	1.27E-03	158.35	4.41E-04	4.03E-03	159.56
Winch Truck	2270002051	250	diesel	111	12	59%	18	26,242	8.04E-03	0.09	0.02	4.14E-03	4.02E-03	1.05E-03	1.94E-03	395.89	3.64E-04	1.01E-02	398.90
Transportation Trucks - materials	-	-	diesel	301	-	-	32	5,440	7.30E-03	0.16	0.08	3.04E-03	2.79E-03	2.05E-04	-	61.22	7.70E-04	6.91E-05	61.26
Substation																			
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	8	6,998	3.50E-03	0.07	0.02	5.28E-03	5.12E-03	2.83E-04	8.45E-04	105.57	2.94E-04	2.69E-03	106.38
Bulldozer	2270002069	200	diesel	107	12	59%	8	9,330	5.69E-03	0.07	0.02	5.06E-03	4.91E-03	3.79E-04	1.37E-03	140.75	3.91E-04	3.58E-03	141.83
Concrete Trucks	2270002042	150	diesel	104	12	43%	16	10,067	0.13	1.44	0.37	0.08	0.07	5.58E-04	0.03	151.87	6.51E-03	3.87E-03	153.19
Drill Rig	2270002033	100	diesel	103	12	43%	8	3,356	0.04	0.47	0.12	0.03	0.03	1.86E-04	9.83E-03	50.63	2.28E-03	1.29E-03	51.07
Man Lift Bucket	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Trencher	2270002030	200	diesel	119	12	59%	8	9,327	0.02	0.23	0.07	1.47E-02	1.43E-02	4.01E-04	4.68E-03	140.71	1.30E-03	3.58E-03	141.81
Winch Truck	2270002051	250	diesel	111	12	59%	4	5,831	1.79E-03	0.02	4.57E-03	9.20E-04	8.93E-04	2.32E-04	4.30E-04	87.98	8.10E-05	2.24E-03	88.65
Cranes	2270002045	200	diesel	106	12	43%	8	6,726	7.87E-03	0.10	0.02	4.39E-03	4.26E-03	2.80E-04	1.89E-03	101.47	5.47E-04	2.58E-03	102.25
Forklifts	2270003020	75	diesel	109	12	59%	8	3,886	8.97E-04	0.09	7.96E-03	1.38E-03	1.34E-03	1.55E-04	2.17E-04	58.62	6.80E-05	1.49E-03	59.07
Skid Steer Loaders	2270002072	150	diesel	116	12	21%	4	1,447	0.04	0.19	0.12	0.02	0.02	8.02E-05	8.91E-03	21.82	1.85E-03	5.56E-04	22.03
Dump Truck (Side or belly dump)	-	-	diesel	302	-	-	16	2,845	6.09E-03	0.11	0.04	2.92E-03	2.68E-03	1.08E-04	-	32.02	7.13E-04	6.96E-05	32.06
Wind Turbine Assembly & Erection																			
Man Lift Bucket	2270003010	150	diesel	101	12	21%	40	14,511	0.13	0.86	0.45	0.09	0.09	6.74E-04	0.03	218.91	7.23E-03	5.57E-03	220.76
Forklift	2270003020	75	diesel	109	12	59%	20	9,714	0.00	0.22	0.02	3.46E-03	3.35E-03	3.87E-04	5.42E-04	146.55	1.70E-04	3.73E-03	147.67
Rough Terrain Cranes	2270002045	200	diesel	106	12	43%	50	42,036	0.05	0.60	0.14	0.03	0.03	1.75E-03	0.01	634.16	3.42E-03	0.02	639.06
Track mounted cranes	2270002045	200	diesel	106	12	43%	12	10,089	0.01	0.14	0.03	6.58E-03	6.39E-03	4.19E-04	2.84E-03	152.20	8.21E-04	3.88E-03	153.37
equip	-	-	diesel	301	-	-	252	42,838	5.75E-02	1.27	0.60	2.39E-02	0.02	1.62E-03	-	482.12	6.06E-03	5.44E-04	482.43
O&M Building																			
Excavators or Backhoes	2270002036	150	diesel	108	10	59%	12	8,747	4.37E-03	0.09	0.03	6.60E-03	6.40E-03	3.54E-04	1.06E-03	131.96	3.67E-04	3.36E-03	132.97
Forklifts	2270003020	75	diesel	109	10	59%	8	3,238	7.48E-04	0.07	6.64E-03	1.15E-03	1.12E-03	1.29E-04	1.81E-04	48.85	5.66E-05	1.24E-03	49.22
Skid Steer Loaders	2270002072	150	diesel	116	10	21%	16	4,822	0.12	0.65	0.40	0.07	0.07	2.67E-04	0.03	72.74	6.15E-03	1.85E-03	73.45
Air compressor	2270006015	50	diesel	102	10	43%	4	779	2.39E-03	0.06	1.19E-02	1.56E-03	1.52E-03	3.40E-05	5.74E-04	11.75	2.59E-04	2.99E-04	11.84
Project Cleanup																			
Front end loader	2270002060	150	diesel	115	12	59%	8	6,997	7.78E-03	0.10	0.04	8.33E-03	8.08E-03	2.89E-04	1.87E-03	105.55	6.16E-04	2.69E-03	106.37
Motor grader	2270002048	100	diesel	110	12	59%	8	4,665	3.62E-03	0.06	0.02	5.99E-03	5.81E-03	1.92E-04	8.74E-04	70.37	3.07E-04	1.79E-03	70.92
Dump Truck	-	-	diesel	302	-	-	8	1,423	3.04E-03	0.05	0.02	1.46E-03	1.34E-03	5.41E-05	-	16.01	3.57E-04	3.48E-05	16.03
Transportation Trucks - material/waste	-	-	diesel	301	-	-	12	2,040	2.74E-03	0.06	0.03	1.14E-03	1.05E-03	7.70E-05	-	22.96	2.89E-04	2.59E-05	22.97
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	305	-	-	1,080	67,465	0.36	2.25	2.48	0.08	0.07	2.57E-03	-	759.27	0.06	3.76E-03	761.82
Worker Commute																			
Light Commercial Truck	-	-	diesel	305	-	-	1,584	98,948	0.53	3.30	3.64	0.11	0.10	3.77E-03	-	1113.60	0.08	5.52E-03	1117.33
Passenger Car	-	-	gasoline	306	-	-	1,056	35,535	0.34	0.22	5.02	8.44E-03	7.47E-03	2.66E-03	-	399.92	0.03	6.30E-03	402.55
							Total	**675,415**	**3.03**	**24.66**	**17.83**	**1.34**	**1.29**	**0.03**	**0.40**	**9,093.78**	**0.29**	**0.17**	**9,150.72**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2023.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm - Construction Emissions
Phase 1 Solar (300 MW)

Construction Equipment	Source Category	HP per unit	Fuel Type	Emiss. Factor ID	hrs per day	Load Factor	Total Equip. Months	Fuel Use	Emissions										
								gal	VOC tons	NO_x tons	CO tons	PM_{10} tons	$PM_{2.5}$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	107	12	59%	20	23,325	1.42E-02	0.17	0.06	1.27E-02	1.23E-02	9.48E-04	3.43E-03	351.88	9.77E-04	8.96E-03	354.58
Excavator / Backhoe	2270002036	150	diesel	108	12	59%	20	17,494	8.74E-03	0.18	0.06	1.32E-02	1.28E-02	7.07E-04	2.11E-03	263.92	7.35E-04	6.72E-03	265.94
Loader / Skid Steer loader	2270002072	150	diesel	116	12	21%	20	7,233	0.19	0.97	0.59	0.11	0.11	4.01E-04	0.04	109.11	9.23E-03	2.78E-03	110.17
Motor grader	2270002048	100	diesel	110	12	59%	20	11,662	9.04E-03	0.15	0.06	1.50E-02	0.01	4.80E-04	2.19E-03	175.94	7.67E-04	4.48E-03	177.29
Vibratory Roller	2270002015	75	diesel	114	12	59%	15	7,284	8.68E-03	0.23	0.08	1.06E-02	1.03E-02	3.01E-04	2.09E-03	109.89	6.40E-04	2.80E-03	110.74
Dump / Belly Truck	-	-	diesel	302	-	-	60	10,670	0.02	0.40	0.17	1.09E-02	1.01E-02	4.06E-04	-	120.08	2.67E-03	2.61E-04	120.23
Water Truck	-	-	diesel	304	-	-	40	4,136	0.02	0.09	0.06	2.06E-03	1.90E-03	1.56E-04	-	46.54	6.76E-03	2.70E-04	46.79
Fuel Truck	-	-	diesel	304	-	-	10	1,034	3.99E-03	0.02	0.01	5.16E-04	4.75E-04	3.90E-05	-	11.64	1.69E-03	6.74E-05	11.70
Pile Driving (Solar)																			
Telehandler	2270003010	150	diesel	101	12	21%	15	5,442	0.05	0.32	0.17	0.03	0.03	2.53E-04	1.19E-02	82.09	2.71E-03	2.09E-03	82.78
PD10 Pile Driver	2270002081	50	diesel	112	12	59%	25	8,090	0.03	0.61	0.19	0.02	0.02	3.46E-04	6.88E-03	122.05	2.64E-03	3.11E-03	123.04
Tracked Skidsteer	2270002072	150	diesel	116	12	21%	10	3,616	0.09	0.48	0.30	0.06	0.05	2.01E-04	0.02	54.56	4.62E-03	1.39E-03	55.09
Loader Tractor	2270002066	150	diesel	118	12	21%	5	1,811	0.03	0.18	0.10	0.02	0.02	9.50E-05	7.86E-03	27.32	2.06E-03	6.96E-04	27.58
Fuel Truck	-	-	diesel	304	12	-	5	517	1.99E-03	1.15E-02	7.09E-03	2.58E-04	2.37E-04	1.95E-05	-	5.82	8.45E-04	3.37E-05	5.85
Electrical																			
Dozer	2270002069	200	diesel	107	12	59%	4	4,665	2.84E-03	0.03	1.23E-02	2.53E-03	2.46E-03	1.90E-04	6.85E-04	70.38	1.95E-04	1.79E-03	70.92
Tracked Skidsteer	2270002072	150	diesel	116	12	21%	20	7,233	0.19	0.97	0.59	0.11	0.11	4.01E-04	0.04	109.11	9.23E-03	2.78E-03	110.17
Roller	2270002015	75	diesel	114	12	59%	8	3,885	4.63E-03	0.12	0.04	5.64E-03	5.47E-03	1.61E-04	1.12E-03	58.61	3.41E-04	1.49E-03	59.06
Towable Air Compressor	2270006015	50	diesel	102	12	43%	4	934	2.86E-03	0.07	1.42E-02	1.88E-03	1.82E-03	4.07E-05	6.89E-04	14.09	3.11E-04	3.59E-04	14.21
Motor Grader	2270002048	100	diesel	110	12	59%	4	2,332	1.81E-03	0.03	1.21E-02	2.99E-03	2.90E-03	9.60E-05	4.37E-04	35.19	1.53E-04	8.96E-04	35.46
Trench Padder	2270002072	175	diesel	116	12	21%	4	1,688	0.04	0.23	0.14	0.03	0.03	9.36E-05	1.04E-02	25.46	2.15E-03	6.48E-04	25.71
Utility Tractor	2270002066	150	diesel	118	12	21%	4	1,449	0.03	0.15	0.08	0.02	0.02	7.60E-05	6.28E-03	21.85	1.65E-03	5.57E-04	22.06
Telehandler	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Boom Truck	2270003010	150	diesel	101	12	21%	12	4,353	0.04	0.26	0.13	0.03	0.03	2.02E-04	9.51E-03	65.67	2.17E-03	1.67E-03	66.23
Fork Truck for Spool Offload	2270003020	75	diesel	109	12	59%	8	3,886	8.97E-04	0.09	7.96E-03	1.38E-03	1.34E-03	1.55E-04	2.17E-04	58.62	6.80E-05	1.49E-03	59.07
Man Lift Bucket	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Trencher	2270002030	200	diesel	119	12	59%	8	9,327	0.02	0.23	0.07	1.47E-02	0.01	4.01E-04	4.68E-03	140.71	1.30E-03	3.58E-03	141.81
Excavators / Backhoes	2270002036	150	diesel	108	12	59%	8	6,998	3.50E-03	0.07	0.02	5.28E-03	5.12E-03	2.83E-04	8.45E-04	105.57	2.94E-04	2.69E-03	106.38
Winch Truck	2270002051	250	diesel	111	12	59%	8	11,663	3.57E-03	0.04	9.14E-03	1.84E-03	1.79E-03	4.65E-04	8.60E-04	175.95	1.62E-04	4.48E-03	177.29
Water Truck	-	-	diesel	304	-		4	414	1.59E-03	9.21E-03	5.67E-03	2.06E-04	1.90E-04	1.56E-05	-	4.65	6.76E-04	2.70E-05	4.68
Transportation Trucks - materials	-	-	diesel	301	-	-	32	5,440	7.30E-03	0.16	0.08	3.04E-03	2.79E-03	2.05E-04	-	61.22	7.70E-04	6.91E-05	61.26
Substation																			
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	8	6,998	3.50E-03	0.07	0.02	5.28E-03	5.12E-03	2.83E-04	8.45E-04	105.57	2.94E-04	2.69E-03	106.38
Bulldozer	2270002069	200	diesel	107	12	59%	8	9,330	5.69E-03	0.07	0.02	5.06E-03	4.91E-03	3.79E-04	1.37E-03	140.75	3.91E-04	3.58E-03	141.83
Concrete Trucks	2270002042	150	diesel	104	12	43%	16	10,067	0.13	1.44	0.37	0.08	0.07	5.58E-04	0.03	151.87	6.51E-03	3.87E-03	153.19
Drill Rig	2270002033	100	diesel	103	12	43%	8	3,356	0.04	0.47	0.12	0.03	0.03	1.86E-04	9.83E-03	50.63	2.28E-03	1.29E-03	51.07
Man Lift Bucket	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Trencher	2270002030	200	diesel	119	12	59%	8	9,327	0.02	0.23	0.07	1.47E-02	1.43E-02	4.01E-04	4.68E-03	140.71	1.30E-03	3.58E-03	141.81
Winch Truck	2270002051	250	diesel	111	12	59%	4	5,831	1.79E-03	0.02	4.57E-03	9.20E-04	8.93E-04	2.32E-04	4.30E-04	87.98	8.10E-05	2.24E-03	88.65
Cranes	2270002045	200	diesel	106	12	43%	8	6,726	7.87E-03	0.10	0.02	4.39E-03	4.26E-03	2.80E-04	1.89E-03	101.47	5.47E-04	2.58E-03	102.25
Forklifts	2270003020	75	diesel	109	12	59%	8	3,886	8.97E-04	0.09	7.96E-03	1.38E-03	1.34E-03	1.55E-04	2.17E-04	58.62	6.80E-05	1.49E-03	59.07
Skid Steer Loaders	2270002072	150	diesel	116	12	21%	4	1,447	0.04	0.19	0.12	0.02	0.02	8.02E-05	8.91E-03	21.82	1.85E-03	5.56E-04	22.03
Dump Truck (Side or belly dump)	-	-	diesel	302	-	-	16	2,845	6.09E-03	0.11	0.04	2.92E-03	2.68E-03	1.08E-04	-	32.02	7.13E-04	6.96E-05	32.06
Solar Panel Installation																			
Tracked Skidsteer	2270002072	175	diesel	116	12	21%	25	10,548	0.27	1.41	0.87	0.16	0.16	5.85E-04	0.06	159.12	1.35E-02	4.05E-03	160.67
Loader	2270002060	150	diesel	115	12	59%	5	4,373	4.86E-03	0.06	0.02	5.21E-03	5.05E-03	1.81E-04	1.17E-03	65.97	3.85E-04	1.68E-03	66.48
Telehandler	2270003010	150	diesel	101	12	21%	15	5,442	0.05	0.32	0.17	0.03	0.03	2.53E-04	1.19E-02	82.09	2.71E-03	2.09E-03	82.78
Project Cleanup																			
Telehandler	2270003010	150	diesel	101	12	21%	10	3,628	0.03	0.21	0.11	0.02	0.02	1.69E-04	7.92E-03	54.73	1.81E-03	1.39E-03	55.19
Tracked Skidsteer	2270002072	150	diesel	116	12	21%	20	7,233	0.19	0.97	0.59	0.11	0.11	4.01E-04	0.04	109.11	9.23E-03	2.78E-03	110.17
Transportation Trucks - material/waste	-	-	diesel	301	-	-	9	1,530	2.05E-03	0.05	0.02	8.54E-04	7.86E-04	5.78E-05	-	17.22	2.16E-04	1.94E-05	17.23
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	305	-	-	900	56,221	0.30	1.88	2.07	0.06	0.06	2.14E-03	-	632.73	0.05	3.14E-03	634.85
Buggies	-	-	gasoline	306	-	-	384	12,922	0.12	0.08	1.83	3.07E-03	2.72E-03	9.66E-04	-	145.43	1.09E-02	2.29E-03	146.38
Busses	-	-	diesel	303	-	-	72	6,857	0.01	0.14	0.09	3.08E-03	2.84E-03	2.59E-04	-	77.17	1.75E-03	2.61E-04	77.30
							Total	**343,847**	**2.12**	**14.67**	**9.94**	**1.15**	**1.11**	**0.02**	**0.39**	**4,794.30**	**0.16**	**0.10**	**4,827.91**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e. 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2023.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm - Construction Emissions
Phase 1 Battery (150 MW)

								Fuel Use	Emissions										
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$PM_{2.5}$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	107	12	59%	4	4,665	2.84E-03	0.03	1.23E-02	2.53E-03	2.46E-03	1.90E-04	6.85E-04	70.38	1.95E-04	1.79E-03	70.92
Excavator / Backhoe	2270002036	150	diesel	108	12	59%	4	3,499	1.75E-03	0.04	1.14E-02	2.64E-03	2.56E-03	1.41E-04	4.22E-04	52.78	1.47E-04	1.34E-03	53.19
Loader / Skid Steer loader	2270002072	150	diesel	116	12	21%	2	723	0.02	0.10	0.06	1.12E-02	1.08E-02	4.01E-05	4.46E-03	10.91	9.23E-04	2.78E-04	11.02
Motor grader	2270002048	100	diesel	110	12	59%	2	1,166	9.04E-04	1.49E-02	6.04E-03	1.50E-03	1.45E-03	4.80E-05	2.19E-04	17.59	7.67E-05	4.48E-04	17.73
Vibratory Roller	2270002015	75	diesel	114	12	59%	2	971	1.16E-03	0.03	1.10E-02	1.41E-03	1.37E-03	4.01E-05	2.79E-04	14.65	8.53E-05	3.73E-04	14.77
Dump / Belly Truck	-	-	diesel	302	-	-	4	711	1.52E-03	0.03	1.11E-02	7.29E-04	6.71E-04	2.71E-05	-	8.01	1.78E-04	1.74E-05	8.02
Water Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Fuel Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	106	12	43%	2	1,681	1.97E-03	0.02	5.50E-03	1.10E-03	1.06E-03	6.99E-05	4.73E-04	25.37	1.37E-04	6.46E-04	25.56
Concrete Truck	2270002042	150	diesel	104	12	43%	8	5,034	0.06	0.72	0.19	0.04	0.04	2.79E-04	0.02	75.94	3.25E-03	1.93E-03	76.59
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	4	3,499	1.75E-03	0.04	1.14E-02	2.64E-03	2.56E-03	1.41E-04	4.22E-04	52.78	1.47E-04	1.34E-03	53.19
Forklifts	2270003020	75	diesel	109	12	59%	4	1,943	4.49E-04	0.04	3.98E-03	6.91E-04	6.71E-04	7.74E-05	1.08E-04	29.31	3.40E-05	7.46E-04	29.53
Skid Steer loader	2270002072	150	diesel	116	12	21%	2	723	0.02	0.10	0.06	1.12E-02	1.08E-02	4.01E-05	4.46E-03	10.91	9.23E-04	2.78E-04	11.02
Dump Truck	-	-	diesel	302	-	-	4	711	1.52E-03	0.03	1.11E-02	7.29E-04	6.71E-04	2.71E-05	-	8.01	1.78E-04	1.74E-05	8.02
Transportation Trucks - materials	-	-	diesel	301	-	-	4	680	9.12E-04	0.02	9.58E-03	3.80E-04	3.49E-04	2.57E-05	-	7.65	9.62E-05	8.63E-06	7.66
Water Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Fuel Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Electrical																			
Boom Truck	2270003010	150	diesel	101	12	21%	2	726	6.59E-03	0.04	0.02	4.45E-03	4.32E-03	3.37E-05	1.58E-03	10.95	3.62E-04	2.79E-04	11.04
Fork Truck for Spool Offload	2270003020	75	diesel	109	12	59%	2	971	2.24E-04	0.02	1.99E-03	3.46E-04	3.35E-04	3.87E-05	5.42E-05	14.65	1.70E-05	3.73E-04	14.77
Man Lift Bucket	2270003010	150	diesel	101	12	21%	2	726	6.59E-03	0.04	0.02	4.45E-03	4.32E-03	3.37E-05	1.58E-03	10.95	3.62E-04	2.79E-04	11.04
Trencher	2270002030	200	diesel	119	12	59%	2	2,332	4.87E-03	0.06	0.02	3.67E-03	3.56E-03	1.00E-04	1.17E-03	35.18	3.26E-04	8.96E-04	35.45
Excavators / Backhoes	2270002036	150	diesel	108	12	59%	2	1,749	8.74E-04	0.02	5.72E-03	1.32E-03	1.28E-03	7.07E-05	2.11E-04	26.39	7.35E-05	6.72E-04	26.59
Transportation Trucks - materials	-	-	diesel	301	-	-	4	680	9.12E-04	0.02	9.58E-03	3.80E-04	3.49E-04	2.57E-05	-	7.65	9.62E-05	8.63E-06	7.66
Project Cleanup																			
Front end loader	2270002060	150	diesel	115	12	59%	1	875	9.72E-04	1.22E-02	4.79E-03	1.04E-03	1.01E-03	3.61E-05	2.34E-04	13.19	7.69E-05	3.36E-04	13.30
Motor grader	2270002048	100	diesel	110	12	59%	1	583	4.52E-04	7.43E-03	3.02E-03	7.49E-04	7.26E-04	2.40E-05	1.09E-04	8.80	3.84E-05	2.24E-04	8.86
Dump Truck	-	-	diesel	302	-	-	1	178	3.80E-04	6.63E-03	2.79E-03	1.82E-04	1.68E-04	6.76E-06	-	2.00	4.46E-05	4.35E-06	2.00
Transportation Trucks - material/waste	-	-	diesel	301	-	-	1	170	2.28E-04	5.05E-03	2.39E-03	9.49E-05	8.73E-05	6.42E-06	-	1.91	2.41E-05	2.16E-06	1.91
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	305	-	-	400	24,987	0.13	0.83	0.92	0.03	0.03	9.53E-04	-	281.21	0.02	1.39E-03	282.16
							Total	**60,810**	**0.27**	**2.29**	**1.42**	**0.12**	**0.11**	**2.51E-03**	**0.03**	**806.49**	**0.03**	**1.37E-02**	**811.34**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2023.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm - Construction Emissions
Phase 2a Wind (250 MW)

								Fuel Use	Emissions										
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$PM_{2.5}$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	32	37,320	0.02	0.22	0.07	1.43E-02	1.39E-02	1.50E-03	4.34E-03	563.02	1.13E-03	1.43E-02	567.33
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	32	27,991	1.09E-02	0.23	0.07	0.02	1.47E-02	1.12E-03	2.62E-03	422.28	8.82E-04	1.08E-02	425.50
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	32	11,573	0.29	1.53	0.94	0.18	0.17	6.42E-04	0.07	174.59	0.02	4.45E-03	176.30
Motor grader	2270002048	100	diesel	210	12	59%	32	18,660	1.02E-02	0.18	0.07	0.02	0.02	7.57E-04	2.46E-03	281.51	8.44E-04	7.17E-03	283.67
Vibratory Roller	2270002015	75	diesel	214	12	59%	24	11,655	1.02E-02	0.33	0.10	1.34E-02	1.30E-02	4.77E-04	2.47E-03	175.84	7.92E-04	4.48E-03	177.19
Dump / Belly Truck	-	-	diesel	402	-	-	96	16,839	0.03	0.59	0.26	1.44E-02	1.33E-02	6.39E-04	-	189.51	4.20E-03	4.17E-04	189.74
Water Truck	-	-	diesel	404	-	-	64	6,497	0.02	0.14	0.09	2.81E-03	2.58E-03	2.45E-04	-	73.12	1.08E-02	4.31E-04	73.52
Fuel Truck	-	-	diesel	404	-	-	16	1,624	6.06E-03	0.03	0.02	7.01E-04	6.45E-04	6.12E-05	-	18.28	2.70E-03	1.08E-04	18.38
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	12	10,089	9.11E-03	0.11	0.03	5.07E-03	4.92E-03	4.14E-04	2.19E-03	152.21	6.27E-04	3.88E-03	153.38
Concrete pump truck	2270002042	200	diesel	205	12	43%	8	6,713	0.07	0.89	0.22	0.04	0.04	3.72E-04	0.02	101.28	3.78E-03	2.58E-03	102.14
Concrete Truck	2270002042	150	diesel	204	12	43%	64	40,269	0.50	5.69	1.47	0.30	0.29	2.23E-03	0.12	607.51	0.03	0.02	612.79
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	16	13,995	5.43E-03	0.12	0.03	7.55E-03	7.33E-03	5.62E-04	1.31E-03	211.14	4.41E-04	5.38E-03	212.75
Forklifts	2270003020	75	diesel	209	12	59%	12	5,828	1.19E-03	0.13	9.02E-03	1.62E-03	1.57E-03	2.32E-04	2.88E-04	87.93	8.72E-05	2.24E-03	88.60
Skid Steer loader	2270002072	150	diesel	216	12	21%	8	2,893	0.07	0.38	0.23	0.04	0.04	1.60E-04	0.02	43.65	3.78E-03	1.11E-03	44.07
Dump Truck	-	-	diesel	402	-	-	24	4,210	8.02E-03	0.15	0.06	3.61E-03	3.32E-03	1.60E-04	-	47.38	1.05E-03	1.04E-04	47.43
Transportation Trucks - materials	-	-	diesel	401	-	-	24	3,993	5.07E-03	0.11	0.06	1.98E-03	1.83E-03	1.51E-04	-	44.94	5.54E-04	5.18E-05	44.97
Water Truck	-	-	diesel	404	-	-	12	1,218	4.55E-03	0.03	0.02	5.26E-04	4.84E-04	4.59E-05	-	13.71	2.02E-03	8.08E-05	13.79
Fuel Truck	-	-	diesel	404	-	-	8	812	3.03E-03	0.02	1.10E-02	3.51E-04	3.23E-04	3.06E-05	-	9.14	1.35E-03	5.39E-05	9.19
Electrical																			
Boom Truck	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	12	5,828	1.19E-03	0.13	9.02E-03	1.62E-03	1.57E-03	2.32E-04	2.88E-04	87.93	8.72E-05	2.24E-03	88.60
Man Lift Bucket	2270003010	150	diesel	201	12	21%	12	4,354	0.04	0.24	0.12	0.02	0.02	2.00E-04	8.67E-03	65.68	2.04E-03	1.67E-03	66.23
Trencher	2270002030	200	diesel	219	12	59%	12	13,992	0.02	0.29	0.09	0.02	0.02	5.93E-04	5.88E-03	211.08	1.64E-03	5.38E-03	212.73
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	12	10,497	4.07E-03	0.09	0.03	5.66E-03	5.49E-03	4.21E-04	9.84E-04	158.35	3.31E-04	4.03E-03	159.56
Winch Truck	2270002051	250	diesel	211	12	59%	8	11,663	3.34E-03	0.04	0.01	1.56E-03	1.51E-03	4.64E-04	8.05E-04	175.95	1.41E-04	4.48E-03	177.29
Transportation Trucks - materials	-	-	diesel	401	-	-	32	5,324	6.76E-03	0.15	0.07	2.65E-03	2.43E-03	2.01E-04	-	59.91	7.39E-04	6.91E-05	59.95
Substation																			
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	20	17,494	6.79E-03	0.14	0.04	9.44E-03	9.16E-03	7.02E-04	1.64E-03	263.92	5.52E-04	6.72E-03	265.94
Bulldozer	2270002069	200	diesel	207	12	59%	20	23,325	1.13E-02	0.13	0.04	8.96E-03	8.69E-03	9.40E-04	2.71E-03	351.89	7.09E-04	8.96E-03	354.58
Concrete Trucks	2270002042	150	diesel	204	12	43%	40	25,168	0.31	3.56	0.92	0.19	0.18	1.40E-03	0.07	379.70	0.02	9.67E-03	382.99
Drill Rig	2270002033	100	diesel	203	12	43%	20	8,390	0.10	1.14	0.29	0.07	0.06	4.63E-04	0.02	126.58	5.67E-03	3.22E-03	127.68
Man Lift Bucket	2270003010	150	diesel	201	12	21%	20	7,256	0.06	0.39	0.20	0.04	0.04	3.34E-04	1.44E-02	109.47	3.40E-03	2.79E-03	110.39
Trencher	2270002030	200	diesel	219	12	59%	20	23,320	0.04	0.48	0.15	0.03	0.03	9.89E-04	9.81E-03	351.81	2.73E-03	8.96E-03	354.55
Winch Truck	2270002051	250	diesel	211	12	59%	10	14,579	4.18E-03	0.05	9.67E-03	1.95E-03	1.89E-03	5.80E-04	1.01E-03	219.94	1.76E-04	5.60E-03	221.61
Cranes	2270002045	200	diesel	206	12	43%	20	16,815	0.02	0.18	0.04	8.45E-03	8.19E-03	6.91E-04	3.65E-03	253.68	1.05E-03	6.46E-03	255.63
Forklifts	2270003020	75	diesel	209	12	59%	20	9,714	1.98E-03	0.21	0.02	2.70E-03	2.62E-03	3.86E-04	4.79E-04	146.55	1.45E-04	3.73E-03	147.67
Skid Steer Loaders	2270002072	150	diesel	216	12	21%	10	3,617	0.09	0.48	0.29	0.06	0.05	2.01E-04	0.02	54.56	4.73E-03	1.39E-03	55.09
Dump Truck (Side or belly dump)	-	-	diesel	402	-	-	40	7,016	1.34E-02	0.24	0.11	6.02E-03	5.54E-03	2.66E-04	-	78.96	1.75E-03	1.74E-04	79.06
Wind Turbine Assembly & Erection																			
Man Lift Bucket	2270003010	150	diesel	201	12	21%	40	14,513	0.12	0.79	0.41	0.08	0.08	6.67E-04	0.03	218.95	6.81E-03	5.58E-03	220.78
Forklift	2270003020	75	diesel	209	12	59%	20	9,714	1.98E-03	0.21	0.02	2.70E-03	2.62E-03	3.86E-04	4.79E-04	146.55	1.45E-04	3.73E-03	147.67
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	50	42,038	0.04	0.46	0.11	0.02	0.02	1.73E-03	9.13E-03	634.19	2.61E-03	0.02	639.07
Track mounted cranes	2270002045	200	diesel	206	12	43%	12	10,089	9.11E-03	0.11	0.03	5.07E-03	4.92E-03	4.14E-04	2.19E-03	152.21	6.27E-04	3.88E-03	153.38
Transportation Trucks - materials & equi	-	-	diesel	401	-	-	252	41,924	5.32E-02	1.19	0.58	0.02	0.02	1.58E-03	-	471.83	5.82E-03	5.44E-04	472.13
Transmission Line																			
Cranes	2270002045	200	diesel	206	8	43%	8	4,484	4.05E-03	0.05	1.14E-02	2.25E-03	2.18E-03	1.84E-04	9.74E-04	67.65	2.79E-04	1.72E-03	68.17
Bucket Trucks	2270003010	150	diesel	201	8	21%	20	4,838	0.04	0.26	0.14	0.03	0.03	2.22E-04	9.63E-03	72.98	2.27E-03	1.86E-03	73.59
Wire Pullers	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Wire Tensioners	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Excavators or Backhoes	2270002036	150	diesel	208	4	59%	18	5,248	2.04E-03	0.04	1.31E-02	2.83E-03	2.75E-03	2.11E-04	4.92E-04	79.18	1.65E-04	2.02E-03	79.78
Forklifts	2270003020	75	diesel	209	4	59%	12	1,943	3.97E-04	0.04	3.01E-03	5.41E-04	5.25E-04	7.73E-05	9.59E-05	29.31	2.91E-05	7.46E-04	29.53
Truck / track diggers	2270002036	150	diesel	208	6	59%	4	1,749	6.79E-04	1.45E-02	4.35E-03	9.44E-04	9.16E-04	7.02E-05	1.64E-04	26.39	5.52E-05	6.72E-04	26.59
Dozers	2270002069	200	diesel	207	4	59%	5	1,944	9.39E-04	1.12E-02	3.64E-03	7.47E-04	7.24E-04	7.83E-05	2.26E-04	29.32	5.91E-05	7.47E-04	29.55
UTVs	2270001060	75	diesel	217	2	21%	6	201	2.68E-03	0.02	1.32E-02	1.79E-03	1.74E-03	9.71E-06	6.44E-04	3.04	1.07E-04	7.73E-05	3.06
Tractor	2270002066	150	diesel	218	6	21%	4	725	1.13E-02	0.06	0.04	7.33E-03	7.11E-03	3.68E-05	2.72E-03	10.93	7.19E-04	2.78E-04	11.03
Skid Steer Loaders	2270002072	150	diesel	216	6	21%	12	2,170	0.05	0.29	0.18	0.03	0.03	1.20E-04	1.32E-02	32.74	2.84E-03	8.34E-04	33.06
Underground boring equipment	2270002033	100	diesel	203	8	43%	12	3,356	0.04	0.45	0.12	0.03	0.03	1.85E-04	9.55E-03	50.63	2.27E-03	1.29E-03	51.07
Tractor Trailers	-	-	diesel	401	-	-	6	998	1.27E-03	0.03	1.39E-02	4.96E-04	4.56E-04	3.76E-05	-	11.23	1.39E-04	1.30E-05	11.24
Fuel Trucks / Trailers	-	-	diesel	404	-	-	6	609	2.27E-03	1.29E-02	8.23E-03	2.63E-04	2.42E-04	2.30E-05	-	6.86	1.01E-03	4.04E-05	6.89
O&M Building																			
Excavators or Backhoes	2270002036	150	diesel	208	10	59%	12	8,747	3.39E-03	0.07	0.02	4.72E-03	4.58E-03	3.51E-04	8.20E-04	131.96	2.76E-04	3.36E-03	132.97
Forklifts	2270003020	75	diesel	209	10	59%	8	3,238	6.61E-04	0.07	5.01E-03	9.01E-04	8.74E-04	1.29E-04	1.60E-04	48.85	4.85E-05	1.24E-03	49.22
Skid Steer Loaders	2270002072	150	diesel	216	10	21%	16	4,822	0.12	0.64	0.39	0.07	0.07	2.67E-04	0.03	72.75	6.31E-03	1.85E-03	73.46
Air compressor	2270006015	50	diesel	202	10	43%	4	779	2.14E-03	0.06	1.04E-02	1.32E-03	1.28E-03	3.34E-05	5.14E-04	11.75	2.47E-04	2.99E-04	11.84
Project Cleanup																			
Front end loader	2270002060	150	diesel	215	12	59%	8	6,997	5.91E-03	0.08	0.03	6.87E-03	6.66E-03	2.86E-04	1.43E-03	105.56	4.68E-04	2.69E-03	106.37
Motor grader	2270002048	100	diesel	210	12	59%	8	4,665	2.55E-03	0.04	0.02	3.95E-03	3.84E-03	1.89E-04	6.16E-04	70.38	2.11E-04	1.79E-03	70.92
Dump Truck	-	-	diesel	402	-	-	8	1,403	2.67E-03	0.05	0.02	1.20E-03	1.11E-03	5.32E-05	-	15.79	3.50E-04	3.48E-05	15.81
Transportation Trucks - material/waste	-	-	diesel	401	-	-	12	1,996	2.53E-03	0.06	0.03	9.92E-04	9.13E-04	7.53E-05	-	22.47	2.77E-04	2.59E-05	22.48
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	405	-	-	1,400	84,833	0.41	2.58	2.79	0.09	0.09	3.23E-03	-	954.75	0.07	4.88E-03	958.05
Worker Commute																			
Light Commercial Truck	-	-	diesel	405	-	-	1,412	85,560	0.41	2.60	2.82	0.10	0.09	3.26E-03	-	962.93	0.07	4.92E-03	966.26
Passenger Car	-	-	gasoline	406	-	-	942	30,938	0.28	0.16	4.33	7.47E-03	6.61E-03	2.31E-03	-	348.19	0.02	5.36E-03	350.41
							Total	**817,455**	**3.47**	**29.48**	**18.44**	**1.68**	**1.62**	**0.04**	**0.53**	**11,198.93**	**0.33**	**0.22**	**11,272.03**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm - Construction Emissions
Phase 2a Solar (250 MW)

Construction Equipment	Source Category	HP per unit	Fuel Type	Emiss. Factor ID	hrs per day	Load Factor	Total Equip. Months	Fuel Use	Emissions										
								gal	VOC tons	NO_x tons	CO tons	PM_{10} tons	$PM_{2.5}$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	16	18,660	9.01E-03	0.11	0.03	7.17E-03	6.95E-03	7.52E-04	2.17E-03	281.51	5.67E-04	7.17E-03	283.66
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	16	13,995	5.43E-03	0.12	0.03	7.55E-03	7.33E-03	5.62E-04	1.31E-03	211.14	4.41E-04	5.38E-03	212.75
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	16	5,787	0.15	0.76	0.47	0.09	0.09	3.21E-04	0.04	87.30	7.57E-03	2.22E-03	88.15
Motor grader	2270002048	100	diesel	210	12	59%	16	9,330	5.10E-03	0.09	0.03	7.91E-03	7.67E-03	3.78E-04	1.23E-03	140.75	4.22E-04	3.58E-03	141.83
Vibratory Roller	2270002015	75	diesel	214	12	59%	12	5,828	5.11E-03	0.17	0.05	6.72E-03	6.52E-03	2.38E-04	1.23E-03	87.92	3.96E-04	2.24E-03	88.60
Dump / Belly Truck	-	-	diesel	402	-	-	48	8,419	0.02	0.29	0.13	7.22E-03	6.64E-03	3.19E-04	-	94.76	2.10E-03	2.09E-04	94.87
Water Truck	-	-	diesel	404	-	-	32	3,249	1.21E-02	0.07	0.04	1.40E-03	1.29E-03	1.22E-04	-	36.56	5.39E-03	2.15E-04	36.76
Fuel Truck	-	-	diesel	404	-	-	8	812	3.03E-03	0.02	1.10E-02	3.51E-04	3.23E-04	3.06E-05	-	9.14	1.35E-03	5.39E-05	9.19
Pile Driving (Solar)																			
Telehandler	2270003010	150	diesel	201	12	21%	15	5,442	0.05	0.29	0.15	0.03	0.03	2.50E-04	1.08E-02	82.11	2.55E-03	2.09E-03	82.79
PD10 Pile Driver	2270002081	50	diesel	212	12	59%	25	8,090	0.03	0.59	0.16	0.02	0.02	3.42E-04	6.04E-03	122.06	2.50E-03	3.11E-03	123.04
Tracked Skidsteer	2270002072	150	diesel	216	12	21%	10	3,617	0.09	0.48	0.29	0.06	0.05	2.01E-04	0.02	54.56	4.73E-03	1.39E-03	55.09
Loader Tractor	2270002066	150	diesel	218	12	21%	5	1,812	0.03	0.16	0.09	0.02	0.02	9.21E-05	6.79E-03	27.33	1.80E-03	6.96E-04	27.58
Fuel Truck	-	-	diesel	404	-	-	5	508	1.89E-03	1.08E-02	6.86E-03	2.19E-04	2.02E-04	1.91E-05	-	5.71	8.43E-04	3.37E-05	5.74
Electrical																			
Dozer	2270002069	200	diesel	207	12	59%	4	4,665	2.25E-03	0.03	8.73E-03	1.79E-03	1.74E-03	1.88E-04	5.43E-04	70.38	1.42E-04	1.79E-03	70.92
Tracked Skidsteer	2270002072	150	diesel	216	12	21%	20	7,233	0.18	0.96	0.58	0.11	0.11	4.01E-04	0.04	109.12	9.46E-03	2.78E-03	110.19
Roller	2270002015	75	diesel	214	12	59%	8	3,885	3.41E-03	0.11	0.03	4.48E-03	4.34E-03	1.59E-04	8.22E-04	58.61	2.64E-04	1.49E-03	59.06
Towable Air Compressor	2270006015	50	diesel	202	12	43%	4	934	2.56E-03	0.07	1.25E-02	1.59E-03	1.54E-03	4.00E-05	6.16E-04	14.10	2.96E-04	3.59E-04	14.21
Motor Grader	2270002048	100	diesel	210	12	59%	4	2,332	1.27E-03	0.02	8.38E-03	1.98E-03	1.92E-03	9.46E-05	3.08E-04	35.19	1.05E-04	8.96E-04	35.46
Trench Padder	2270002072	175	diesel	216	12	21%	4	1,688	0.04	0.22	0.14	0.03	0.02	9.36E-05	1.03E-02	25.46	2.21E-03	6.48E-04	25.71
Utility Tractor	2270002066	150	diesel	218	12	21%	4	1,449	0.02	0.13	0.07	1.47E-02	1.42E-02	7.37E-05	5.43E-03	21.86	1.44E-03	5.57E-04	22.07
Telehandler	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Boom Truck	2270003010	150	diesel	201	12	21%	12	4,354	0.04	0.24	0.12	0.02	0.02	2.00E-04	8.67E-03	65.68	2.04E-03	1.67E-03	66.23
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	8	3,886	7.93E-04	0.08	6.01E-03	1.08E-03	1.05E-03	1.55E-04	1.92E-04	58.62	5.81E-05	1.49E-03	59.07
Man Lift Bucket	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Trencher	2270002030	200	diesel	219	12	59%	8	9,328	0.02	0.19	0.06	1.21E-02	1.17E-02	3.96E-04	3.92E-03	140.72	1.09E-03	3.58E-03	141.82
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	8	6,998	2.72E-03	0.06	0.02	3.78E-03	3.66E-03	2.81E-04	6.56E-04	105.57	2.21E-04	2.69E-03	106.38
Winch Truck	2270002051	250	diesel	211	12	59%	12	17,494	5.02E-03	0.06	1.16E-02	2.34E-03	2.27E-03	6.96E-04	1.21E-03	263.93	2.11E-04	6.72E-03	265.94
Water Truck	-	-	diesel	404	-	-	4	406	1.52E-03	8.61E-03	5.49E-03	1.75E-04	1.61E-04	1.53E-05	-	4.57	6.74E-04	2.69E-05	4.60
Transportation Trucks - materials	-	-	diesel	401	-	-	32	5,324	6.76E-03	0.15	0.07	2.65E-03	2.43E-03	2.01E-04	-	59.91	7.39E-04	6.91E-05	59.95
Substation																			
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	8	6,998	2.72E-03	0.06	0.02	3.78E-03	3.66E-03	2.81E-04	6.56E-04	105.57	2.21E-04	2.69E-03	106.38
Bulldozer	2270002069	200	diesel	207	12	59%	8	9,330	4.50E-03	0.05	0.02	3.58E-03	3.48E-03	3.76E-04	1.09E-03	140.76	2.83E-04	3.58E-03	141.83
Concrete Trucks	2270002042	150	diesel	204	12	43%	16	10,067	0.12	1.42	0.37	0.08	0.07	5.58E-04	0.03	151.88	6.67E-03	3.87E-03	153.20
Drill Rig	2270002033	100	diesel	203	12	43%	8	3,356	0.04	0.45	0.12	0.03	0.03	1.85E-04	9.55E-03	50.63	2.27E-03	1.29E-03	51.07
Man Lift Bucket	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Trencher	2270002030	200	diesel	219	12	59%	8	9,328	0.02	0.19	0.06	1.21E-02	1.17E-02	3.96E-04	3.92E-03	140.72	1.09E-03	3.58E-03	141.82
Winch Truck	2270002051	250	diesel	211	12	59%	4	5,831	1.67E-03	0.02	3.87E-03	7.79E-04	7.56E-04	2.32E-04	4.02E-04	87.98	7.03E-05	2.24E-03	88.65
Cranes	2270002045	200	diesel	206	12	43%	8	6,726	6.08E-03	0.07	0.02	3.38E-03	3.28E-03	2.76E-04	1.46E-03	101.47	4.18E-04	2.58E-03	102.25
Forklifts	2270003020	75	diesel	209	12	59%	8	3,886	7.93E-04	0.08	6.01E-03	1.08E-03	1.05E-03	1.55E-04	1.92E-04	58.62	5.81E-05	1.49E-03	59.07
Skid Steer Loaders	2270002072	150	diesel	216	12	21%	4	1,447	0.04	0.19	0.12	0.02	0.02	8.02E-05	8.79E-03	21.82	1.89E-03	5.56E-04	22.04
Dump Truck (Side or belly dump)	-	-	diesel	402	-	-	16	2,806	5.35E-03	0.10	0.04	2.41E-03	2.21E-03	1.06E-04	-	31.59	7.00E-04	6.95E-05	31.62
Solar Panel Installation																			
Tracked Skidsteer	2270002072	175	diesel	216	12	21%	25	10,548	0.27	1.39	0.85	0.16	0.16	5.85E-04	0.06	159.14	1.38E-02	4.05E-03	160.69
Loader	2270002060	150	diesel	215	12	59%	5	4,373	3.70E-03	0.05	0.02	4.29E-03	4.16E-03	1.79E-04	8.91E-04	65.98	2.92E-04	1.68E-03	66.48
Telehandler	2270003010	150	diesel	201	12	21%	15	5,442	0.05	0.29	0.15	0.03	0.03	2.50E-04	1.08E-02	82.11	2.55E-03	2.09E-03	82.79
Project Cleanup																			
Telehandler	2270003010	150	diesel	201	12	21%	10	3,628	0.03	0.20	0.10	0.02	0.02	1.67E-04	7.22E-03	54.74	1.70E-03	1.39E-03	55.19
Tracked Skidsteer	2270002072	150	diesel	216	12	21%	20	7,233	0.18	0.96	0.58	0.11	0.11	4.01E-04	0.04	109.12	9.46E-03	2.78E-03	110.19
Transportation Trucks - material/waste	-	-	diesel	401	-	-	9	1,497	1.90E-03	0.04	0.02	7.44E-04	6.85E-04	5.65E-05	-	16.85	2.08E-04	1.94E-05	16.86
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	405	-	-	825	49,991	0.24	1.52	1.65	0.06	0.05	1.90E-03	-	562.62	0.04	2.87E-03	564.56
Buggies	-	-	gasoline	406	-	-	352	11,561	0.11	0.06	1.62	2.79E-03	2.47E-03	8.64E-04	-	130.11	9.33E-03	2.00E-03	130.94
Busses	-	-	diesel	403	-	-	66	6,175	8.76E-03	0.12	0.08	2.85E-03	2.62E-03	2.33E-04	-	69.50	1.54E-03	2.39E-04	69.61
							Total	**324,457**	**1.92**	**13.23**	**8.75**	**1.05**	**1.01**	**1.43E-02**	**0.36**	**4,547.13**	**0.15**	**0.10**	**4,579.36**

Notes:
1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e. 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm - Construction Emissions
Phase 2a Battery (150 MW)

								Fuel Use	Emissions										
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$PM_{2.5}$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	4	4,665	2.25E-03	0.03	8.73E-03	1.79E-03	1.74E-03	1.88E-04	5.43E-04	70.38	1.42E-04	1.79E-03	70.92
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	4	3,499	1.36E-03	0.03	8.70E-03	1.89E-03	1.83E-03	1.40E-04	3.28E-04	52.78	1.10E-04	1.34E-03	53.19
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	2	723	0.02	0.10	0.06	1.10E-02	1.07E-02	4.01E-05	4.40E-03	10.91	9.46E-04	2.78E-04	11.02
Motor grader	2270002048	100	diesel	210	12	59%	2	1,166	6.37E-04	1.12E-02	4.19E-03	9.88E-04	9.59E-04	4.73E-05	1.54E-04	17.59	5.27E-05	4.48E-04	17.73
Vibratory Roller	2270002015	75	diesel	214	12	59%	2	971	8.52E-04	0.03	8.55E-03	1.12E-03	1.09E-03	3.97E-05	2.05E-04	14.65	6.60E-05	3.73E-04	14.77
Dump / Belly Truck	-	-	diesel	402	-	-	4	702	1.34E-03	0.02	1.07E-02	6.02E-04	5.54E-04	2.66E-05	-	7.90	1.75E-04	1.74E-05	7.91
Water Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Fuel Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	2	1,682	1.52E-03	0.02	4.29E-03	8.45E-04	8.19E-04	6.91E-05	3.65E-04	25.37	1.05E-04	6.46E-04	25.56
Concrete Truck	2270002042	150	diesel	204	12	43%	8	5,034	0.06	0.71	0.18	0.04	0.04	2.79E-04	1.49E-02	75.94	3.33E-03	1.93E-03	76.60
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	4	3,499	1.36E-03	0.03	8.70E-03	1.89E-03	1.83E-03	1.40E-04	3.28E-04	52.78	1.10E-04	1.34E-03	53.19
Forklifts	2270003020	75	diesel	209	12	59%	4	1,943	3.97E-04	0.04	3.01E-03	5.41E-04	5.25E-04	7.73E-05	9.59E-05	29.31	2.91E-05	7.46E-04	29.53
Skid Steer loader	2270002072	150	diesel	216	12	21%	2	723	0.02	0.10	0.06	1.10E-02	1.07E-02	4.01E-05	4.40E-03	10.91	9.46E-04	2.78E-04	11.02
Dump Truck	-	-	diesel	402	-	-	4	702	1.34E-03	0.02	1.07E-02	6.02E-04	5.54E-04	2.66E-05	-	7.90	1.75E-04	1.74E-05	7.91
Transportation Trucks - materials	-	-	diesel	401	-	-	4	665	8.45E-04	0.02	9.26E-03	3.31E-04	3.04E-04	2.51E-05	-	7.49	9.24E-05	8.63E-06	7.49
Water Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Fuel Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Electrical																			
Boom Truck	2270003010	150	diesel	201	12	21%	2	726	6.00E-03	0.04	0.02	4.07E-03	3.95E-03	3.34E-05	1.44E-03	10.95	3.40E-04	2.79E-04	11.04
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	2	971	1.98E-04	0.02	1.50E-03	2.70E-04	2.62E-04	3.86E-05	4.79E-05	14.66	1.45E-05	3.73E-04	14.77
Man Lift Bucket	2270003010	150	diesel	201	12	21%	2	726	6.00E-03	0.04	0.02	4.07E-03	3.95E-03	3.34E-05	1.44E-03	10.95	3.40E-04	2.79E-04	11.04
Trencher	2270002030	200	diesel	219	12	59%	2	2,332	4.07E-03	0.05	0.02	3.03E-03	2.94E-03	9.89E-05	9.81E-04	35.18	2.73E-04	8.96E-04	35.45
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	2	1,749	6.79E-04	1.45E-02	4.35E-03	9.44E-04	9.16E-04	7.02E-05	1.64E-04	26.39	5.52E-05	6.72E-04	26.59
Transportation Trucks - materials	-	-	diesel	401	-	-	4	665	8.45E-04	0.02	9.26E-03	3.31E-04	3.04E-04	2.51E-05	-	7.49	9.24E-05	8.63E-06	7.49
Project Cleanup																			
Front end loader	2270002060	150	diesel	215	12	59%	1	875	7.39E-04	9.78E-03	3.89E-03	8.58E-04	8.33E-04	3.58E-05	1.78E-04	13.20	5.85E-05	3.36E-04	13.30
Motor grader	2270002048	100	diesel	210	12	59%	1	583	3.19E-04	5.58E-03	2.09E-03	4.94E-04	4.79E-04	2.36E-05	7.70E-05	8.80	2.64E-05	2.24E-04	8.86
Dump Truck	-	-	diesel	402	-	-	1	175	3.34E-04	6.09E-03	2.67E-03	1.50E-04	1.38E-04	6.66E-06	-	1.97	4.37E-05	4.35E-06	1.98
Transportation Trucks - material/waste	-	-	diesel	401	-	-	1	166	2.11E-04	4.72E-03	2.32E-03	8.27E-05	7.61E-05	6.27E-06	-	1.87	2.31E-05	2.16E-06	1.87
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	405	-	-	400	24,238	0.12	0.74	0.80	0.03	0.02	9.23E-04	-	272.79	0.02	1.39E-03	273.73
							Total	**59,993**	**0.25**	**2.12**	**1.27**	**0.11**	**0.11**	**2.47E-03**	**0.03**	**797.29**	**0.03**	**1.37E-02**	**802.14**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm - Construction Emissions
Phase 2b Wind (500 MW)

Construction Equipment	Source Category	HP per unit	Fuel Type	Emiss. Factor ID	hrs per day	Load Factor	Total Equip. Months	Fuel Use gal	Emissions VOC tons	NO_X tons	CO tons	PM_{10} tons	$PM_{2.5}$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	32	37,320	0.02	0.22	0.07	1.43E-02	1.39E-02	1.50E-03	4.34E-03	563.02	1.13E-03	1.43E-02	567.33
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	32	27,991	1.09E-02	0.23	0.07	0.02	1.47E-02	1.12E-03	2.62E-03	422.28	8.82E-04	1.08E-02	425.50
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	32	11,573	0.29	1.53	0.94	0.18	0.17	6.42E-04	0.07	174.59	0.02	4.45E-03	176.30
Motor grader	2270002048	100	diesel	210	12	59%	32	18,660	1.02E-02	0.18	0.07	0.02	0.02	7.57E-04	2.46E-03	281.51	8.44E-04	7.17E-03	283.67
Vibratory Roller	2270002015	75	diesel	214	12	59%	24	11,655	1.02E-02	0.33	0.10	1.34E-02	1.30E-02	4.77E-04	2.47E-03	175.84	7.92E-04	4.48E-03	177.19
Dump / Belly Truck	-	-	diesel	402	-	-	96	16,839	0.03	0.59	0.26	1.44E-02	1.33E-02	6.39E-04	-	189.51	4.20E-03	4.17E-04	189.74
Water Truck	-	-	diesel	404	-	-	64	6,497	0.02	0.14	0.09	2.81E-03	2.58E-03	2.45E-04	-	73.12	1.08E-02	4.31E-04	73.52
Fuel Truck	-	-	diesel	404	-	-	16	1,624	6.06E-03	0.03	0.02	7.01E-04	6.45E-04	6.12E-05	-	18.28	2.70E-03	1.08E-04	18.38
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	18	15,134	1.37E-02	0.16	0.04	7.60E-03	7.37E-03	6.22E-04	3.29E-03	228.31	9.41E-04	5.81E-03	230.07
Concrete pump truck	2270002042	200	diesel	205	12	43%	12	10,070	0.11	1.33	0.33	0.06	0.06	5.59E-04	0.03	151.92	5.67E-03	3.87E-03	153.22
Concrete Truck	2270002042	150	diesel	204	12	43%	96	60,404	0.74	8.53	2.20	0.45	0.44	3.35E-03	0.18	911.27	0.04	0.02	919.19
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	24	20,993	8.15E-03	0.17	0.05	1.13E-02	1.10E-02	8.43E-04	1.97E-03	316.71	6.62E-04	8.07E-03	319.13
Forklifts	2270003020	75	diesel	209	12	59%	18	8,743	1.78E-03	0.19	1.35E-02	2.43E-03	2.36E-03	3.48E-04	4.31E-04	131.90	1.31E-04	3.36E-03	132.90
Skid Steer loader	2270002072	150	diesel	216	12	21%	12	4,340	0.11	0.57	0.35	0.07	0.06	2.41E-04	0.03	65.47	5.68E-03	1.67E-03	66.11
Dump Truck	-	-	diesel	402	-	-	36	6,315	1.20E-02	0.22	0.10	5.42E-03	4.98E-03	2.40E-04	-	71.07	1.57E-03	1.56E-04	71.15
Transportation Trucks - materials	-	-	diesel	401	-	-	36	5,989	7.60E-03	0.17	0.08	2.98E-03	2.74E-03	2.26E-04	-	67.40	8.32E-04	7.77E-05	67.45
Water Truck	-	-	diesel	404	-	-	24	2,436	9.09E-03	0.05	0.03	1.05E-03	9.68E-04	9.19E-05	-	27.42	4.05E-03	1.62E-04	27.57
Fuel Truck	-	-	diesel	404	-	-	12	1,218	4.55E-03	0.03	0.02	5.26E-04	4.84E-04	4.59E-05	-	13.71	2.02E-03	8.08E-05	13.79
Electrical																			
Boom Truck	2270003010	150	diesel	201	12	21%	16	5,805	0.05	0.31	0.16	0.03	0.03	2.67E-04	1.16E-02	87.58	2.72E-03	2.23E-03	88.31
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	16	7,771	1.59E-03	0.17	1.20E-02	2.16E-03	2.10E-03	3.09E-04	3.83E-04	117.24	1.16E-04	2.99E-03	118.13
Man Lift Bucket	2270003010	150	diesel	201	12	21%	16	5,805	0.05	0.31	0.16	0.03	0.03	2.67E-04	1.16E-02	87.58	2.72E-03	2.23E-03	88.31
Trencher	2270002030	200	diesel	219	12	59%	16	18,656	0.03	0.38	0.12	0.02	0.02	7.91E-04	7.84E-03	281.45	2.19E-03	7.17E-03	283.64
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	16	13,995	5.43E-03	0.12	0.03	7.55E-03	7.33E-03	5.62E-04	1.31E-03	211.14	4.41E-04	5.38E-03	212.75
Winch Truck	2270002051	250	diesel	211	12	59%	24	34,989	1.00E-02	0.12	0.02	4.67E-03	4.53E-03	1.39E-03	2.41E-03	527.85	4.22E-04	1.34E-02	531.87
Transportation Trucks - materials	-	-	diesel	401	-	-	64	10,647	1.35E-02	0.30	0.15	5.29E-03	4.87E-03	4.02E-04	-	119.83	1.48E-03	1.38E-04	119.91
Substation																			
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	20	17,494	6.79E-03	0.14	0.04	9.44E-03	9.16E-03	7.02E-04	1.64E-03	263.92	5.52E-04	6.72E-03	265.94
Bulldozer	2270002069	200	diesel	207	12	59%	20	23,325	1.13E-02	0.13	0.04	8.96E-03	8.69E-03	9.40E-04	2.71E-03	351.89	7.09E-04	8.96E-03	354.58
Concrete Trucks	2270002042	150	diesel	204	12	43%	40	25,168	0.31	3.56	0.92	0.19	0.18	1.40E-03	0.07	379.70	0.02	9.67E-03	382.99
Drill Rig	2270002033	100	diesel	203	12	43%	20	8,390	0.10	1.14	0.29	0.07	0.06	4.63E-04	0.02	126.58	5.67E-03	3.22E-03	127.68
Man Lift Bucket	2270003010	150	diesel	201	12	21%	20	7,256	0.06	0.39	0.20	0.04	0.04	3.34E-04	1.44E-02	109.47	3.40E-03	2.79E-03	110.39
Trencher	2270002030	200	diesel	219	12	59%	20	23,320	0.04	0.48	0.15	0.03	0.03	9.89E-04	9.81E-03	351.81	2.73E-03	8.96E-03	354.55
Winch Truck	2270002051	250	diesel	211	12	59%	10	14,579	4.18E-03	0.05	9.67E-03	1.95E-03	1.89E-03	5.80E-04	1.01E-03	219.94	1.76E-04	5.60E-03	221.61
Cranes	2270002045	200	diesel	206	12	43%	20	16,815	0.02	0.18	0.04	8.45E-03	8.19E-03	6.91E-04	3.65E-03	253.68	1.05E-03	6.46E-03	255.63
Forklifts	2270003020	75	diesel	209	12	59%	20	9,714	1.98E-03	0.21	0.02	2.70E-03	2.62E-03	3.86E-04	4.79E-04	146.55	1.45E-04	3.73E-03	147.67
Skid Steer Loaders	2270002072	150	diesel	216	12	21%	10	3,617	0.09	0.48	0.29	0.06	0.05	2.01E-04	0.02	54.56	4.73E-03	1.39E-03	55.09
Dump Truck (Side or belly dump)	-	-	diesel	402	-	-	40	7,016	1.34E-02	0.24	0.11	6.02E-03	5.54E-03	2.66E-04	-	78.96	1.75E-03	1.74E-04	79.06
Wind Turbine Assembly & Erection																			
Man Lift Bucket	2270003010	150	diesel	201	12	21%	56	20,318	0.17	1.10	0.57	0.11	0.11	9.34E-04	0.04	306.53	9.53E-03	7.81E-03	309.09
Forklift	2270003020	75	diesel	209	12	59%	28	13,600	2.78E-03	0.30	0.02	3.79E-03	3.67E-03	5.41E-04	6.71E-04	205.17	2.04E-04	5.22E-03	206.73
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	70	58,853	0.05	0.64	0.15	0.03	0.03	2.42E-03	1.28E-02	887.87	3.66E-03	0.02	894.70
Track mounted cranes	2270002045	200	diesel	206	12	43%	18	15,134	1.37E-02	0.16	0.04	7.60E-03	7.37E-03	6.22E-04	3.29E-03	228.31	9.41E-04	5.81E-03	230.07
Transportation Trucks - materials &	-	-	diesel	401	-	-	336	55,898	7.10E-02	1.59	0.78	0.03	0.03	2.11E-03	-	629.10	7.76E-03	7.25E-04	629.51
Transmission Line																			
Cranes	2270002045	200	diesel	206	8	43%	8	4,484	4.05E-03	0.05	1.14E-02	2.25E-03	2.18E-03	1.84E-04	9.74E-04	67.65	2.79E-04	1.72E-03	68.17
Bucket Trucks	2270003010	150	diesel	201	8	21%	20	4,838	0.04	0.26	0.14	0.03	0.03	2.22E-04	9.63E-03	72.98	2.27E-03	1.86E-03	73.59
Wire Pullers	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Wire Tensioners	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Excavators or Backhoes	2270002036	150	diesel	208	4	59%	18	5,248	2.04E-03	0.04	1.31E-02	2.83E-03	2.75E-03	2.11E-04	4.92E-04	79.18	1.65E-04	2.02E-03	79.78
Forklifts	2270003020	75	diesel	209	4	59%	12	1,943	3.97E-04	0.04	3.01E-03	5.41E-04	5.25E-04	7.73E-05	9.59E-05	29.31	2.91E-05	7.46E-04	29.53
Truck / track diggers	2270002036	150	diesel	208	6	59%	4	1,749	6.79E-04	1.45E-02	4.35E-03	9.44E-04	9.16E-04	7.02E-05	1.64E-04	26.39	5.52E-05	6.72E-04	26.59
Dozers	2270002069	200	diesel	207	4	59%	5	1,944	9.39E-04	1.12E-02	3.64E-03	7.47E-04	7.24E-04	7.83E-05	2.26E-04	29.32	5.91E-05	7.47E-04	29.55
UTVs	2270001060	75	diesel	217	2	21%	6	201	2.68E-03	0.02	1.32E-02	1.79E-03	1.74E-03	9.71E-06	6.44E-04	3.04	1.07E-04	7.73E-05	3.06
Tractor	2270002066	150	diesel	218	6	21%	4	725	1.13E-02	0.06	0.04	7.33E-03	7.11E-03	3.68E-05	2.72E-03	10.93	7.19E-04	2.78E-04	11.03
Skid Steer Loaders	2270002072	150	diesel	216	6	21%	12	2,170	0.05	0.29	0.18	0.03	0.03	1.20E-04	1.32E-02	32.74	2.84E-03	8.34E-04	33.06
Underground boring equipment	2270002033	100	diesel	203	8	43%	12	3,356	0.04	0.45	0.12	0.03	0.03	1.85E-04	9.55E-03	50.63	2.27E-03	1.29E-03	51.07
Tractor Trailers	-	-	diesel	401	-	-	6	998	1.27E-03	0.03	1.39E-02	4.96E-04	4.56E-04	3.76E-05	-	11.23	1.39E-04	1.30E-05	11.24
Fuel Trucks / Trailers	-	-	diesel	404	-	-	6	609	2.27E-03	1.29E-02	8.23E-03	2.63E-04	2.42E-04	2.30E-05	-	6.86	1.01E-03	4.04E-05	6.89
O&M Building																			
Excavators or Backhoes	2270002036	150	diesel	208	10	59%	12	8,747	3.39E-03	0.07	0.02	4.72E-03	4.58E-03	3.51E-04	8.20E-04	131.96	2.76E-04	3.36E-03	132.97
Forklifts	2270003020	75	diesel	209	10	59%	8	3,238	6.61E-04	0.07	5.01E-03	9.01E-04	8.74E-04	1.29E-04	1.60E-04	48.85	4.85E-05	1.24E-03	49.22
Skid Steer Loaders	2270002072	150	diesel	216	10	21%	16	4,822	0.12	0.64	0.39	0.07	0.07	2.67E-04	0.03	72.75	6.31E-03	1.85E-03	73.46
Air compressor	2270006015	50	diesel	202	10	43%	4	779	2.14E-03	0.06	1.04E-02	1.32E-03	1.28E-03	3.34E-05	5.14E-04	11.75	2.47E-04	2.99E-04	11.84
Project Cleanup																			
Front end loader	2270002060	150	diesel	215	12	59%	10	8,746	7.39E-03	0.10	0.04	8.58E-03	8.33E-03	3.58E-04	1.78E-03	131.95	5.85E-04	3.36E-03	132.97
Motor grader	2270002048	100	diesel	210	12	59%	10	5,831	3.19E-03	0.06	0.02	4.94E-03	4.79E-03	2.36E-04	7.70E-04	87.97	2.64E-04	2.24E-03	88.65
Dump Truck	-	-	diesel	402	-	-	10	1,754	3.34E-03	0.06	0.03	1.50E-03	1.38E-03	6.66E-05	-	19.74	4.37E-04	4.35E-05	19.76
Transportation Trucks - material/waste	-	-	diesel	401	-	-	15	2,495	3.17E-03	0.07	0.03	1.24E-03	1.14E-03	9.41E-05	-	28.08	3.47E-04	3.24E-05	28.10
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	405	-	-	2,100	127,250	0.61	3.87	4.19	0.14	0.13	4.84E-03	-	1432.12	0.11	7.32E-03	1437.07
Worker Commute																			
Light Commercial Truck	-	-	diesel	405	-	-	1,626	98,528	0.47	2.99	3.25	0.11	0.10	3.75E-03	-	1108.87	0.09	5.66E-03	1112.71
Passenger Car	-	-	gasoline	406	-	-	1,084	35,602	0.33	0.19	4.98	8.60E-03	7.61E-03	2.66E-03	-	400.68	0.03	6.17E-03	403.24
							Total	**1,015,521**	**4.27**	**36.73**	**22.69**	**2.04**	**1.96**	**0.04**	**0.64**	**13,857.79**	**0.41**	**0.27**	**13,947.13**

Notes:
1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2003.
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm - Construction Emissions
Operations and Maintenance

Construction Equipment	Source Category	HP per unit	Fuel Type	Emiss. Factor ID	hrs per day	Load Factor	Total Equip. Months	Fuel Use gal	Emissions VOC tons	NO_X tons	CO tons	PM_{10} tons	$PM_{2.5}$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Solar Panel Cleaning																			
Water Truck	-	-	diesel	404	-	-	24	2,436	9.09E-03	0.05	0.03	1.05E-03	9.68E-04	9.19E-05	-	27.42	4.05E-03	1.62E-04	27.57
Worker Commute																			
Light Commercial Truck	-	-	diesel	405	-	-	115	6,968	0.03	0.21	0.23	7.76E-03	7.14E-03	2.65E-04	-	78.43	6.07E-03	4.01E-04	78.70
Passenger Car	-	-	gasoline	406	-	-	77	2,529	0.02	0.01	0.35	6.11E-04	5.40E-04	1.89E-04	-	28.46	2.04E-03	4.38E-04	28.64
							Total	**11,934**	**0.07**	**0.28**	**0.62**	**9.43E-03**	**8.65E-03**	**5.46E-04**	**0.00**	**134.31**	**1.22E-02**	**1.00E-03**	**134.91**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., 21 days/month.
3. Calculations conservatively assume that onroad vehicles travel approximately 50 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately 40 miles per day, since emission factors from the MOVES2014 model for onroad vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2
7. Onroad vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. Onroad vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm
Emission Factors

2023 Factors for Land-based Nonroad Engines and Other Equipment (Benton County, WA)

	NONROAD Source Category			NONROAD Emission Factors (g/hp-hr) /a								Climate Leaders (g/kWh) /b	Fuel Consumption gal/kWh /c	NONROAD
	SCC	Description	Engine Size (hp)	Exhaust+ Crankcase VOC	Exhaust NO_x	Exhaust CO	Exhaust PM_{10}	Exhaust $PM_{2.5}$	Exhaust SO_2	Exhaust CO_2	Exhaust CH_4	Exhaust N_2O		Default Load Factor
101	2270003010	Aerial Lifts	100 < hp <= 175	0.376424	2.443597	1.276235	0.254440	0.246807	0.001927	625.5	0.020662	0.016	0.061	21%
102	2270006015	Air Compressors	50 < hp <= 75	0.119871	2.895070	0.596171	0.078496	0.076141	0.001705	590.0	0.013032	0.015	0.058	43%
103	2270002033	Bore/Drill Rigs	100 < hp <= 175	0.427554	4.897321	1.265764	0.283498	0.274993	0.001948	529.8	0.023823	0.013	0.052	43%
104	2270002042	Cement & Mortar Mixers	100 < hp <= 175	0.436188	5.030485	1.299992	0.266438	0.258445	0.001948	529.8	0.022694	0.013	0.052	43%
105	2270002042	Cement & Mortar Mixers	175 < hp <= 300	0.385082	4.731720	1.157440	0.216126	0.209642	0.001949	529.9	0.019336	0.013	0.052	43%
106	2270002045	Cranes	175 < hp <= 300	0.041190	0.501905	0.115081	0.022971	0.022281	0.001463	530.9	0.002864	0.014	0.052	43%
107	2270002069	Crawler Tractor/Dozers	175 < hp <= 300	0.021693	0.261679	0.093740	0.019313	0.018733	0.001446	536.8	0.001491	0.014	0.053	59%
108	2270002036	Excavators	100 < hp <= 175	0.017780	0.362621	0.116397	0.026855	0.026049	0.001439	536.8	0.001495	0.014	0.053	59%
109	2270003020	Forklifts	75 < hp <= 100	0.009126	0.877277	0.080988	0.014059	0.013638	0.001574	596.1	0.000691	0.015	0.058	59%
110	2270002048	Graders	100 < hp <= 175	0.027585	0.453197	0.184198	0.045672	0.044302	0.001464	536.8	0.002341	0.014	0.053	59%
111	2270002051	Off-highway Trucks	175 < hp <= 300	0.010901	0.128754	0.027887	0.005615	0.005447	0.001417	536.8	0.000494	0.014	0.053	59%
112	2270002081	Other Construction Equipment	50 < hp <= 75	0.139477	2.984215	0.921432	0.109816	0.106521	0.001689	595.8	0.012876	0.015	0.058	59%
113	2270002081	Other Construction Equipment	100 < hp <= 175	0.079433	0.920534	0.324906	0.069897	0.067800	0.001522	536.6	0.005693	0.014	0.053	59%
114	2270002015	Rollers	75 < hp <= 100	0.047096	1.233691	0.449010	0.057364	0.055643	0.001633	596.0	0.003470	0.015	0.058	59%
115	2270002060	Rubber Tire Loaders	100 < hp <= 175	0.039552	0.494267	0.194670	0.042373	0.041102	0.001470	536.7	0.003130	0.014	0.053	59%
116	2270002072	Skid Steer Loaders	100 < hp <= 175	1.058915	5.532446	3.396834	0.638169	0.619024	0.002293	623.5	0.052753	0.016	0.061	21%
117	2270001060	Specialty Vehicle Carts	50 < hp <= 75	0.669291	4.141205	3.279180	0.450044	0.436543	0.002247	694.1	0.025095	0.018	0.068	21%
118	2270002066	Tractors/Loaders/Backhoes	100 < hp <= 175	0.746563	4.152040	2.356593	0.476468	0.462175	0.002172	624.4	0.047102	0.016	0.061	21%
119	2270002030	Trenchers	175 < hp <= 300	0.074220	0.875665	0.280526	0.056045	0.054363	0.001530	536.6	0.004972	0.014	0.053	59%

/a Emission factors for the land-based nonroad engines were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.

/b Emission factors for N_2O are based on Table B-8 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016. (0.26 g N2O/gal fuel)

/c Fuel consumption for each type of equipment was estimated based on CO2 emission factor (g/hp-hr) generated from the MOVES2014b model and the emission factor for the mass of CO2 generated per gallon of fuel (10.21 kg CO_2/gal fuel) as presented in Table A-1 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016.

Horse Heaven Wind Farm
Emission Factors

2024 Factors for Land-based Nonroad Engines and Other Equipment (Benton County, WA)

	NONROAD Source Category			NONROAD Emission Factors (g/hp-hr) /a								Climate Leaders (g/kWh) /b	Fuel Consumption gal/kWh /c	NONROAD
	SCC	Description	Engine Size (hp)	Exhaust+ Crankcase VOC	Exhaust NO_x	Exhaust CO	Exhaust PM_{10}	Exhaust $PM_{2.5}$	Exhaust SO_2	Exhaust CO_2	Exhaust CH_4	Exhaust N_2O		Default Load Factor
201	2270003010	Aerial Lifts	100 < hp <= 175	0.343116	2.244312	1.168366	0.232684	0.225704	0.001907	625.6	0.019457	0.016	0.061	21%
202	2270006015	Air Compressors	50 < hp <= 75	0.107269	2.833988	0.524802	0.066519	0.064523	0.001676	590.1	0.012384	0.015	0.058	43%
203	2270002033	Bore/Drill Rigs	100 < hp <= 175	0.415637	4.758356	1.220811	0.276390	0.268098	0.001938	529.9	0.023742	0.013	0.052	43%
204	2270002042	Cement & Mortar Mixers	100 < hp <= 175	0.431877	4.960604	1.278622	0.262782	0.254898	0.001948	529.8	0.023260	0.013	0.052	43%
205	2270002042	Cement & Mortar Mixers	175 < hp <= 300	0.380258	4.656690	1.136865	0.211408	0.205065	0.001949	530.0	0.019791	0.013	0.052	43%
206	2270002045	Cranes	175 < hp <= 300	0.031792	0.383332	0.089851	0.017676	0.017146	0.001446	531.0	0.002188	0.014	0.052	43%
207	2270002069	Crawler Tractor/Dozers	175 < hp <= 300	0.017180	0.205727	0.066568	0.013666	0.013256	0.001434	536.8	0.001081	0.014	0.053	59%
208	2270002036	Excavators	100 < hp <= 175	0.013805	0.294341	0.088521	0.019202	0.018626	0.001428	536.8	0.001122	0.014	0.053	59%
209	2270003020	Forklifts	75 < hp <= 100	0.008068	0.863434	0.061159	0.011000	0.010670	0.001571	596.1	0.000591	0.015	0.058	59%
210	2270002048	Graders	100 < hp <= 175	0.019442	0.340177	0.127815	0.030156	0.029251	0.001443	536.8	0.001608	0.014	0.053	59%
211	2270002051	Off-highway Trucks	175 < hp <= 300	0.010204	0.120191	0.023612	0.004752	0.004610	0.001415	536.8	0.000429	0.014	0.053	59%
212	2270002081	Other Construction Equipment	50 < hp <= 75	0.122516	2.900716	0.785789	0.091306	0.088567	0.001667	595.8	0.012211	0.015	0.058	59%
213	2270002081	Other Construction Equipment	100 < hp <= 175	0.066363	0.777606	0.274295	0.058201	0.056455	0.001502	536.6	0.004835	0.014	0.053	59%
214	2270002015	Rollers	75 < hp <= 100	0.034643	1.131882	0.347647	0.045550	0.044183	0.001616	596.1	0.002685	0.015	0.058	59%
215	2270002060	Rubber Tire Loaders	100 < hp <= 175	0.030069	0.397966	0.158162	0.034918	0.033870	0.001456	536.7	0.002379	0.014	0.053	59%
216	2270002072	Skid Steer Loaders	100 < hp <= 175	1.044565	5.461095	3.340533	0.631123	0.612190	0.002293	623.6	0.054061	0.016	0.061	21%
217	2270001060	Specialty Vehicle Carts	50 < hp <= 75	0.612170	3.999074	3.017768	0.410255	0.397947	0.002220	694.2	0.024358	0.018	0.068	21%
218	2270002066	Tractors/Loaders/Backhoes	100 < hp <= 175	0.645219	3.609054	2.049890	0.418799	0.406235	0.002105	624.7	0.041111	0.016	0.061	21%
219	2270002030	Trenchers	175 < hp <= 300	0.062155	0.730293	0.232913	0.046190	0.044804	0.001509	536.7	0.004169	0.014	0.053	59%

/a Emission factors for the land-based nonroad engines were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.

/b Emission factors for N_2O are based on Table B-8 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016. (0.26 g N2O/gal fuel)

/c Fuel consumption for each type of equipment was estimated based on CO2 emission factor (g/hp-hr) generated from the MOVES2014b model and the emission factor for the mass of CO2 generated per gallon of fuel (10.21 kg CO_2/gal fuel) as presented in Table A-1 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016.

Horse Heaven Wind Farm
Emission Factors

2023 Factor for On-road Vehicles (Benton County, WA)

			MOVES2014b Emission factors in grams/VMT /a										
			VOC	NO_x	CO	PM_{10}	PM2.5	SO_2	CO_2	CH_4	N_2O	CO_2e	mi/gal
301	Diesel Combination Long-haul Truck		0.19708	4.36280	2.06888	0.08199	0.07543	0.00554	1653.0	0.02078	0.00187	1654.0	6.18
302	Diesel Refuse Truck		0.32863	5.72492	2.40662	0.15755	0.14494	0.00584	1729.2	0.03852	0.00376	1731.2	5.90
303	Diesel Single Unit Long-haul Truck		0.12184	1.62455	1.06090	0.03698	0.03402	0.00310	926.1	0.02096	0.00313	927.6	11.02
304	Diesel Single Unit Short-haul Truck		0.34450	1.98908	1.22486	0.04459	0.04102	0.00337	1005.3	0.14599	0.00583	1010.7	10.16
305	Diesel Light Commercial Truck		0.28924	1.80128	1.98747	0.06054	0.05570	0.00206	607.4	0.04553	0.00301	608.6	16.81
306	Gasoline Passenger Car		0.27542	0.17850	4.10694	0.00691	0.00611	0.00217	327.2	0.02458	0.00515	329.1	31.20

/a Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2023 using the default input files for calendar year 2023 from the State of Washington Department of Ecology.

2024 Factor for On-road Vehicles (Benton County, WA)

			MOVES2014b Emission factors in grams/VMT /a										
			VOC	NO_x	CO	PM_{10}	PM2.5	SO_2	CO_2	CH_4	N_2O	CO_2e	mi/gal
401	Diesel Combination Long-haul Truck		0.18245	4.08130	2.00034	0.07144	0.06572	0.00542	1617.7	0.01996	0.00187	1618.7	6.31
402	Diesel Refuse Truck		0.28885	5.26539	2.30820	0.13000	0.11960	0.00575	1705.6	0.03780	0.00376	1707.6	5.99
403	Diesel Single Unit Long-haul Truck		0.11464	1.55932	1.04570	0.03728	0.03430	0.00305	909.8	0.02010	0.00313	911.2	11.22
404	Diesel Single Unit Short-haul Truck		0.32730	1.85878	1.18535	0.03787	0.03484	0.00331	987.2	0.14565	0.00582	992.5	10.34
405	Diesel Light Commercial Truck		0.25216	1.59025	1.72447	0.05833	0.05367	0.00199	589.2	0.04557	0.00301	590.4	17.33
406	Gasoline Passenger Car		0.26095	0.14939	3.96998	0.00685	0.00606	0.00212	319.4	0.02291	0.00492	321.2	31.97

/a Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2024 using the default input files for calendar year 2024 from the State of Washington Department of Ecology.

Horse Heaven Wind Farm
MOVES Emission Factors

Benton County, WA												
Input Year	Fuel	Vehicle Type	Emission Factor grams/VMT									
			VOC	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
2023	Diesel	Combination Long-haul Truck	0.19708	4.36280	2.06888	0.08199	0.07543	0.00554	1653.0	0.02078	0.00187	1654.0
		Combination Short-haul Truck	0.20423	4.06897	1.91375	0.07046	0.06483	0.00552	1650.4	0.03287	0.00291	1652.1
		Single Unit Long-haul Truck	0.12184	1.62455	1.06090	0.03698	0.03402	0.00310	926.1	0.02096	0.00313	927.6
		Single Unit Short-haul Truck	0.34450	1.98908	1.22486	0.04459	0.04102	0.00337	1005.3	0.14599	0.00583	1010.7
		Refuse Truck	0.32863	5.72492	2.40662	0.15755	0.14494	0.00584	1729.2	0.03852	0.00376	1731.2
		Light Commercial Truck	0.28924	1.80128	1.98747	0.06054	0.05570	0.00206	607.4	0.04553	0.00301	608.6
		Passenger Car	0.19987	0.10901	4.07464	0.00257	0.00237	0.00114	340.9	0.00394	0.00068	341.2
	Gasoline	Combination Short-haul Truck	9.23402	7.44913	135.8309	0.07234	0.06400	0.01038	1563.0	0.33299	0.03792	1582.5
		Single Unit Long-haul Truck	0.76947	0.38745	7.97404	0.01577	0.01395	0.00674	1014.4	0.02776	0.00928	1017.8
		Single Unit Short-haul Truck	1.12743	0.66741	11.18899	0.03934	0.03480	0.00717	1079.0	0.06638	0.04681	1093.0
		Refuse Truck	3.28673	4.48433	39.12965	0.18280	0.16171	0.00784	1180.6	0.17743	0.07946	1208.7
		Light Commercial Truck	0.28364	0.31128	5.17191	0.01102	0.00975	0.00298	448.9	0.03101	0.00922	452.2
		Passenger Car	0.27542	0.17850	4.10694	0.00691	0.00611	0.00217	327.2	0.02458	0.00515	329.1

Note: Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2023 using the de input files for Benton County from the State of Washington Department of Ecology.

Benton County, WA												
Input Year	Fuel	Vehicle Type	Emission Factor grams/VMT									
			VOC	NOx	CO	PM10	PM2.5	SO2	CO2	CH4	N2O	CO2e
2024	Diesel	Combination Long-haul Truck	0.18245	4.08130	2.00034	0.07144	0.06572	0.00542	1617.7	0.01996	0.00187	1618.7
		Combination Short-haul Truck	0.19133	3.85586	1.85778	0.06245	0.05746	0.00541	1616.8	0.03167	0.00291	1618.4
		Single Unit Long-haul Truck	0.11464	1.55932	1.04570	0.03728	0.03430	0.00305	909.8	0.02010	0.00313	911.2
		Single Unit Short-haul Truck	0.32730	1.85878	1.18535	0.03787	0.03484	0.00331	987.2	0.14565	0.00582	992.5
		Refuse Truck	0.28885	5.26539	2.30820	0.13000	0.11960	0.00575	1705.6	0.03780	0.00376	1707.6
		Light Commercial Truck	0.25216	1.59025	1.72447	0.05833	0.05367	0.00199	589.2	0.04557	0.00301	590.4
		Passenger Car	0.19368	0.09464	3.90412	0.00255	0.00235	0.00110	329.4	0.00323	0.00068	329.6
	Gasoline	Combination Short-haul Truck	7.57169	6.25666	112.9196	0.06689	0.05917	0.01057	1590.7	0.28324	0.03486	1608.1
		Single Unit Long-haul Truck	0.70314	0.32138	7.51225	0.01459	0.01291	0.00669	1007.1	0.02535	0.00864	1010.3
		Single Unit Short-haul Truck	1.08079	0.60565	10.67867	0.03860	0.03415	0.00712	1071.7	0.06378	0.04355	1084.8
		Refuse Truck	3.54956	4.40078	38.29389	0.18183	0.16085	0.00789	1187.7	0.17365	0.07850	1215.3
		Light Commercial Truck	0.27141	0.27620	4.88040	0.01095	0.00968	0.00293	440.5	0.02907	0.00876	443.6
		Passenger Car	0.26095	0.14939	3.96998	0.00685	0.00606	0.00212	319.4	0.02291	0.00492	321.2

Note: Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2024 using the de input files for Benton County from the State of Washington Department of Ecology.

HORSE HEAVEN WIND FARM

EPA NEI HAP Emission Factors for Nonroad Diesels

HAP emission factors for nonroad diesels (below) were obtained from ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2003 (available from http://www.epa.gov/ttn/chief/net/1999inventory.html#final3haps), Appendix D, Tables D-1 through D-3. This is the reference cited by EPA's National Inventory Model (NMIM), i.e., US EPA, "EPA's National Inventory Model (NMIM), A Consolidated Emissions Modeling System for MOBILE6 and NONROAD", EPA420-R-05-024, December 2005 (available from http://www.epa.gov/otaq/models/nmim/420r05024.pdf), pp. 19-21.

Pollutant	Fraction of	Emissions Factor %
1,3-butadiene	VOC - Exhaust	0.0018616
formaldehyde	VOC	0.11815
benzene	VOC	0.020344
acetaldehyde	VOC	0.05308
ethylbenzene	VOC - Exhaust	0.0031001
styrene	VOC - Exhaust	0.00059448
acrolein	VOC	0.00303
toluene	VOC	0.014967
hexane	VOC	0.0015913
propionaldehyde	VOC	0.011815
2,2,4-trimethylpentane	VOC	0.000719235
2,3,7,8-TCDD TEQ **	tons TEQ/gal	1.90705E-14
xylenes	VOC	0.010582
Total HAP (ratioed to VOC)		**0.239834715**
PAH		
benz[a]anthracene	PM10	0.0000071
benzo[a]pyrene	PM10	0.00000035
benzo[b]fluoranthene	PM10	0.00000049
benzo[k]fluoranthene	PM10	0.00000035
chrysene	PM10	0.0000019
dibenzo[a,h]anthracene	PM10	2.9E-09
indeno[1,2,3-c,d]pyrene	PM10	0.000000079
acenaphthene	PM10	0.0001
acenaphthylene	PM10	0.000084
anthracene	PM10	0.00000043
benzo[g,h,i]perylene	PM10	0.00000019
fluoranthene	PM10	0.000017
fluorene	PM10	0.0001
naphthalene	PM10	0.00046
phenanthrene	PM10	0.00026
pyrene	PM10	0.0000029
Total HAP (ratioed to PM10)		**0.001034792**
chromium	ug/bhp-hr	0.03
manganese	ug/bhp-hr	1.37
nickel	ug/bhp-hr	2.035
Total HAP (Metals ug/bhp-hr)		**3.435**

** Note: the emission rate for 2,3,7,8-TCDD TEQ is significantly lower than any other HAP and therefore, was not factored into the total HAP emission factor.

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EFSEC Supplementary Emission Calculations

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Horse Heaven Wind Farm - Construction Emissions Emission Summary by Phase and Calendar Year

Emission Totals by Phase	VOC tons	NO_X tons	CO tons	PM_{10} tons	$^{PM}2.5$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Phase 1 Wind	3.03	24.66	17.83	1.34	1.29	0.03	0.40	9,093.78	0.29	0.17	9,150.72
Phase 1 Solar	2.12	14.67	9.94	1.15	1.11	0.02	0.39	4,794.30	0.16	0.10	4,827.91
Phase 1 Battery	0.27	2.29	1.42	0.12	0.11	2.51E-03	0.03	806.49	0.03	1.37E-02	811.34
Phase 1 total	**5.43**	**41.63**	**29.19**	**2.61**	**2.51**	**0.05**	**0.82**	**14,694.57**	**0.48**	**0.28**	**14,789.97**
Phase 2a Wind	3.47	29.48	18.44	1.68	1.62	0.04	0.53	11,198.93	0.33	0.22	11,272.03
Phase 2a Solar	1.92	13.23	8.75	1.05	1.01	1.43E-02	0.36	4,547.13	0.15	0.10	4,579.36
Phase 2a Battery	0.25	2.12	1.27	0.11	0.11	2.47E-03	0.03	797.29	0.03	1.37E-02	802.14
Phase 2a total	**5.64**	**44.82**	**28.46**	**2.84**	**2.73**	**0.05**	**0.92**	**16,543.35**	**0.51**	**0.33**	**16,653.53**
Phase 2b Wind	4.27	36.73	22.69	2.04	1.96	0.04	0.64	13,857.79	0.41	0.27	13,947.13
Phase 2b total	**4.27**	**36.73**	**22.69**	**2.04**	**1.96**	**0.04**	**0.64**	**13,857.79**	**0.41**	**0.27**	**13,947.13**
O&M	0.07	0.28	0.62	9.43E-03	8.65E-03	5.46E-04	0	134.31	1.22E-02	1.00E-03	134.91
O&M total	**0.07**	**0.28**	**0.62**	**9.43E-03**	**8.65E-03**	**5.46E-04**	**0**	**134.31**	**1.22E-02**	**1.00E-03**	**134.91**

Emission Totals by Calendar Year	VOC tons	NO_X tons	CO tons	PM_{10} tons	$^{PM}2.5$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
2023 (Phase 1)	5.43	41.63	29.19	2.61	2.51	0.05	0.82	14,694.57	0.48	0.28	14,789.97
2024 (Maximum of Phase 2a or 2b)	5.64	44.82	28.46	2.84	2.73	0.05	0.92	16,543.35	0.51	0.33	16,653.53
2025 and onward (O&M)	0.07	0.28	0.62	9.43E-03	8.65E-03	5.46E-04	0	134.31	1.22E-02	1.00E-03	134.91

Construction Distrurbance Area

Project-Related Impacts

Project Component	Units	Dimensions per Unit	Number of Units	Temporary Disturbance Acres[1/]	Units[2/]	Dimensions per Unit[3/]	Number of Units[4/]	Permanent Disturbance Acres	# Construction Scheduled Days			Factor to multiply (frequency)		
									Phase 1	Phase 2a	Phase 2b	Phase 1	Phase 2a	Phase 2b
Wind Turbine Generators	Acres per tower	4.51	244	1,070	Square feet per tower	5,278.0	244	30	198	199	199	0.54	0.55	0.55
Overhead Collector Lines[2/]	Feet of width per linear foot	35	1.8 (mi)	0.5	Square feet per structure	7.1	58	0.01	163	164	164	0.45	0.45	0.45
Underground Collector Lines[2/]	Feet of width per linear foot	30	285.4 (mi)	787	Square feet per structure	25.0	103	0.06	163	164	164	0.45	0.45	0.45
230-kV Transmission Lines	Feet of width per linear foot	100	19.4 (mi)	235	Square feet per structure	4.3	213	0.02	NA	NA	213	NA	NA	0.58
500-kV Transmission Lines	Feet of width per linear foot	200	0.5 (mi)	12	Square feet per structure	4.3	4	<0.01	NA	213	NA	NA	0.58	NA
Meteorological Towers	Acres	1.62	13	21	Square feet per tower	1,764	13	0.5	163	164	164	0.45	0.45	0.45
Meteorological Towers Roads	Feet of width per linear foot	50	2.8 (mi)	17	Feet of width per linear foot	16.0	2.8 (mi)	5	NA	NA	NA	NA	NA	NA
New Access Roads[4/]	Feet of width per linear foot	50	104.5	634	Feet of width per linear foot	16	104.5 (mi)	203	NA	NA	NA	NA	NA	NA
Road Modification (Turning Radius Widening)	Each	--	19	3	Acres	--	--	0	NA	NA	NA	NA	NA	NA
Crane Paths	Feet of width per linear foot	36	33.6 (mi)	147	Feet of width per linear foot	--	--	0	NA	NA	NA	NA	NA	NA
Substations[5/]	Acres	--	5	3	Acres	--	5	38	163	164	164	0.45	0.45	
Battery Storage Facilities	Acres	--	3	1	Acres	--	3	18	120	120	NA	0.33	0.33	NA
Laydown Yards	Acres	--	2	48	Acres	--	--	0	NA	NA	NA	NA	NA	NA
O&M Building	Acres	--	2	0.9	Acres	--	2	10	103	103	103	0.28	0.28	
Solar Array County Well	Acres	--	--	18	Acres	--	--	2,641[6/]	NA	304	NA	NA	0.83	NA
Solar Array Sellards	Acres	--	--	22	Acres	--	--	1,935[6/]	303	304	NA	0.83	0.83	NA
Solar Array East	Acres	--	--	37	Acres	--	--	1,994[6/]	303	NA	NA	0.83	NA	NA
Total Impacts[7/]:		Temporary		2,957	Permanent			6,869						Total

1/ Overlapping permanent disturbance area is subtracted from temporary impact corridors/areas (e.g., temporary impact area around a Turbine does not include the Turbine foundation and graveled area; those are shown only in the permanent impact column).
2/ The collector lines within the solar siting area are not included in this row. Collector lines associated with the Project's solar component are within the fenceline and included in the total permanent disturbance reported for the solar arrays. As the entire area is considered permanently disturbed, no temporary impact is estimated for collector lines within the solar siting area.
3/ See Table 2.3-3 for alternates under consideration for transmission lines. The longest potential transmission line alternative would be construction of the intertie between the alternate HH-West substation and the HH-East substation (19.4 miles). Table 2.3-3 describes other potential combinations of transmission line but none would have greater disturbance area than shown here.
4/ As for collector lines, disturbance from construction of new access roads associated with the Project's solar component is included in the total permanent disturbance reported for the solar siting area. As the entire area within the fenceline is considered permanently disturbed, no temporary impact is estimated for new access roads within the solar siting area.
5/ A total of five Project substation locations are under consideration but no more than four substations would be constructed (see Table 2.3-2). The disturbance area associated with all five locations is shown here as a conservative depiction of potential project impacts.
6/ Permanent Disturbance for Solar Arrays is shown here as disturbance of all areas inside the fence line. However, vegetation would remain within the majority of the solar array except for graveled interior access roads, inverter pad placement, and tracker system support posts,
7/ Totals were calculated using consolidated data, with areas of overlap eliminated. Therefore, totals are not a sum of the Project component rows.

Construction Distrurbance Area

Temporary			Permanent			Total Area (acres)			Total Area (acres) adjusted		
Phase 1	**Phase 2a**	**Phase 2b**	**Phase 1**	**Phase 2a**	**Phase 2b**	**Phase 1**	**Phase 2a**	**Phase 2b**	**Phase 1**	**Phase 2a**	**Phase 2b**
340	244	486	10	7	14	350	251	499	189.7	136.9	272.2
0.167	0.167	0.167	0.003	0.003	0.003	0	0	0	0.1	0.1	0.1
262.33	262.33	262.33	0.02	0.02	0.02	262	262	262	117.2	117.9	117.9
NA	NA	235	NA	NA	0.02	NA	NA	235	NA	NA	137.1
NA	12	NA	NA	0.01	NA	NA	12	NA	NA	7.0	NA
10.5	10.5	10.5	0.25	0.25	0.25	11	11	11	4.8	4.8	4.8
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0.6	1.8	0.6	7.6	22.8	7.6	8	25	8	3.7	11.1	0.0
0.3333333	0.666666667	no battery storage facilities	6	12	no battery storage facilities	6	13	NA	2.1	4.2	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
0.45	0.45	0.45	5	5	5	5	5	5	1.5	1.5	0.0
NA	18	NA	NA	NA	NA	NA	18	NA	NA	NA	NA
11	11	NA	NA	NA	NA	11	11	NA	9.1	NA	NA
37	NA	NA	NA	NA	NA	37	NA	NA	30.7	NA	NA
663	561	995	28	47	27	691	608	1021	359	283	532

Horse Heaven Wind Farm - Construction Emissions
Summary of Construction Schedule by Phase

Proposed Phase 1 Construction Schedule		
Task	**Start**	**Finish**
Road Construction	1/13/2023	5/3/2023
Wind Turbine Foundations	1/27/2023	4/26/2023
Wind Turbine Assembly	5/4/2023	8/21/2023
Wind Plant Commissioning	7/31/2023	10/30/2023
Solar Array Construction	1/1/2023	10/31/2023
Electrical System Installation	2/15/2023	9/1/2023
Battery Energy Storage System	5/4/2023	9/1/2023
Solar Plant Commissioning	9/1/2023	11/30/2023
Electrical System and Substation	2/15/2023	7/28/2023
O&M Building	3/17/2023	6/28/2023
Phase 1 Final Commercial Operation Date	**11/30/2023**	**-**
Proposed Phase 2a Construction Schedule		
Task	**Start**	**Finish**
Road Construction	1/13/2024	5/3/2024
Wind Turbine Foundations	1/27/2024	4/26/2024
Wind Turbine Assembly	5/4/2024	8/21/2024
Wind Plant Commissioning	7/31/2024	10/30/2024
Solar Array Construction	1/1/2024	10/31/2024
Electrical System Installation	2/15/2024	9/1/2024
Battery Energy Storage System	5/4/2024	9/1/2024
Solar Plant Commissioning	9/1/2024	11/30/2024
Electrical System and Substation	2/15/2024	7/28/2024
O&M Facilities	3/17/2024	6/28/2024
Transmission Line Construction	1/1/2024	8/1/2024
Phase 2a Final Commercial Operation Date	**11/30/2024**	**-**
Proposed Phase 2b Construction Schedule		
Task	**Start**	**Finish**
Road Construction	1/13/2024	5/3/2024
Wind Turbine Foundations	1/27/2024	4/26/2024
Electrical System and Substation	2/15/2024	7/28/2024
Wind Turbine Assembly	5/4/2024	8/21/2024
O&M Facilities	3/17/2024	6/28/2024
Transmission Line Construction	1/1/2024	8/1/2024
Plant Commissioning	7/31/2024	10/30/2024
Phase 2b Final Commercial Operation Date	**10/30/2024**	**-**

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 1 Wind (350 MW)

								Fuel Use	Emissions									
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	107	12	59%	24	27,989	0.02	0.21	0.07	0.02	1.47E-02	1.14E-03	4.11E-03	422.26	1.17E-03	1.08E-02	425.49
Excavator / Backhoe	2270002036	150	diesel	108	12	59%	24	20,993	1.05E-02	0.21	0.07	0.02	0.02	8.49E-04	2.53E-03	316.70	8.82E-04	8.06E-03	319.13
Loader / Skid Steer loader	2270002072	150	diesel	116	12	21%	24	8,679	0.22	1.16	0.71	0.13	0.13	4.81E-04	0.05	130.94	1.11E-02	3.33E-03	132.21
Motor grader	2270002048	100	diesel	110	12	59%	24	13,994	1.09E-02	0.18	0.07	0.02	0.02	5.76E-04	2.62E-03	211.12	9.21E-04	5.38E-03	212.75
Vibratory Roller	2270002015	75	diesel	114	12	59%	18	8,741	1.04E-02	0.27	0.10	1.27E-02	1.23E-02	3.61E-04	2.51E-03	131.87	7.68E-04	3.36E-03	132.89
Dump / Belly Truck	-	-	diesel	302	-	-	72	12,804	0.03	0.48	0.20	1.31E-02	1.21E-02	4.87E-04	-	144.10	3.21E-03	3.13E-04	144.27
Water Truck	-	-	diesel	304	-	-	48	4,963	0.02	0.11	0.07	2.48E-03	2.28E-03	1.87E-04	-	55.85	8.11E-03	3.24E-04	56.15
Fuel Truck	-	-	diesel	304	-	-	12	1,241	4.78E-03	0.03	0.02	6.19E-04	5.70E-04	4.68E-05	-	13.96	2.03E-03	8.09E-05	14.04
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	106	12	43%	12	10,089	1.18E-02	0.14	0.03	6.58E-03	6.39E-03	4.19E-04	2.84E-03	152.20	8.21E-04	3.88E-03	153.37
Concrete pump truck	2270002042	200	diesel	105	12	43%	8	6,713	0.07	0.90	0.22	0.04	0.04	3.72E-04	0.02	101.28	3.70E-03	2.58E-03	102.14
Concrete Truck	2270002042	150	diesel	104	12	43%	64	40,268	0.50	5.77	1.49	0.31	0.30	2.23E-03	0.12	607.50	0.03	0.02	612.76
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	16	13,995	6.99E-03	0.14	0.05	1.06E-02	1.02E-02	5.66E-04	1.69E-03	211.13	5.88E-04	5.38E-03	212.75
Forklifts	2270003020	75	diesel	109	12	59%	12	5,828	1.35E-03	0.13	1.19E-02	2.07E-03	2.01E-03	2.32E-04	3.25E-04	87.93	1.02E-04	2.24E-03	88.60
Skid Steer loader	2270002072	150	diesel	116	12	21%	8	2,893	0.07	0.39	0.24	0.04	0.04	1.60E-04	0.02	43.65	3.69E-03	1.11E-03	44.07
Dump Truck	-	-	diesel	302	-	-	24	4,268	9.13E-03	0.16	0.07	4.38E-03	4.03E-03	1.62E-04	-	48.03	1.07E-03	1.04E-04	48.09
Transportation Trucks - materials	-	-	diesel	301	-	-	24	4,080	5.47E-03	0.12	0.06	2.28E-03	2.10E-03	1.54E-04	-	45.92	5.77E-04	5.18E-05	45.95
Water Truck	-	-	diesel	304	-	-	12	1,241	4.78E-03	0.03	0.02	6.19E-04	5.70E-04	4.68E-05	-	13.96	2.03E-03	8.09E-05	14.04
Fuel Truck	-	-	diesel	304	-	-	8	827	3.19E-03	0.02	1.13E-02	4.13E-04	3.80E-04	3.12E-05	-	9.31	1.35E-03	5.39E-05	9.36
Electrical																			
Boom Truck	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Fork Truck for Spool Offload	2270003020	75	diesel	109	12	59%	12	5,828	1.35E-03	0.13	1.19E-02	2.07E-03	2.01E-03	2.32E-04	3.25E-04	87.93	1.02E-04	2.24E-03	88.60
Man Lift Bucket	2270003010	150	diesel	101	12	21%	12	4,353	0.04	0.26	0.13	0.03	0.03	2.02E-04	9.51E-03	65.67	2.17E-03	1.67E-03	66.23
Trencher	2270002030	200	diesel	119	12	59%	12	13,991	0.03	0.34	0.11	0.02	0.02	6.02E-04	7.03E-03	211.07	1.96E-03	5.37E-03	212.72
Excavators / Backhoes	2270002036	150	diesel	108	12	59%	12	10,496	5.24E-03	0.11	0.03	7.92E-03	7.68E-03	4.24E-04	1.27E-03	158.35	4.41E-04	4.03E-03	159.56
Winch Truck	2270002051	250	diesel	111	12	59%	18	26,242	8.04E-03	0.09	0.02	4.14E-03	4.02E-03	1.05E-03	1.94E-03	395.89	3.64E-04	1.01E-02	398.90
Transportation Trucks - materials	-	-	diesel	301	-	-	32	5,440	7.30E-03	0.16	0.08	3.04E-03	2.79E-03	2.05E-04	-	61.22	7.70E-04	6.91E-05	61.26
Substation																			
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	8	6,998	3.50E-03	0.07	0.02	5.28E-03	5.12E-03	2.83E-04	8.45E-04	105.57	2.94E-04	2.69E-03	106.38
Bulldozer	2270002069	200	diesel	107	12	59%	8	9,330	5.69E-03	0.07	0.02	5.06E-03	4.91E-03	3.79E-04	1.37E-03	140.75	3.91E-04	3.58E-03	141.83
Concrete Trucks	2270002042	150	diesel	104	12	43%	16	10,067	0.13	1.44	0.37	0.08	0.07	5.58E-04	0.03	151.87	6.51E-03	3.87E-03	153.19
Drill Rig	2270002033	100	diesel	103	12	43%	8	3,356	0.04	0.47	0.12	0.03	0.03	1.86E-04	9.83E-03	50.63	2.28E-03	1.29E-03	51.07
Man Lift Bucket	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Trencher	2270002030	200	diesel	119	12	59%	8	9,327	0.02	0.23	0.07	1.47E-02	1.43E-02	4.01E-04	4.68E-03	140.71	1.30E-03	3.58E-03	141.81
Winch Truck	2270002051	250	diesel	111	12	59%	4	5,831	1.79E-03	0.02	4.57E-03	9.20E-04	8.93E-04	2.32E-04	4.30E-04	87.98	8.10E-05	2.24E-03	88.65
Cranes	2270002045	200	diesel	106	12	43%	8	6,726	7.87E-03	0.10	0.02	4.39E-03	4.26E-03	2.80E-04	1.89E-03	101.47	5.47E-04	2.58E-03	102.25
Forklifts	2270003020	75	diesel	109	12	59%	8	3,886	8.97E-04	0.09	7.96E-03	1.38E-03	1.34E-03	1.55E-04	2.17E-04	58.62	6.80E-05	1.49E-03	59.07
Skid Steer Loaders	2270002072	150	diesel	116	12	21%	4	1,447	0.04	0.19	0.12	0.02	0.02	8.02E-05	8.91E-03	21.82	1.85E-03	5.56E-04	22.03
Dump Truck (Side or belly dump)	-	-	diesel	302	-	-	16	2,845	6.09E-03	0.11	0.04	2.92E-03	2.68E-03	1.08E-04	-	32.02	7.13E-04	6.96E-05	32.06
Wind Turbine Assembly & Erection																			
Man Lift Bucket	2270003010	150	diesel	101	12	21%	40	14,511	0.13	0.86	0.45	0.09	0.09	6.74E-04	0.03	218.91	7.23E-03	5.57E-03	220.76
Forklift	2270003020	75	diesel	109	12	59%	20	9,714	0.00	0.22	0.02	3.46E-03	3.35E-03	3.87E-04	5.42E-04	146.55	1.70E-04	3.73E-03	147.67
Rough Terrain Cranes	2270002045	200	diesel	106	12	43%	50	42,036	0.05	0.60	0.14	0.03	0.03	1.75E-03	0.01	634.16	3.42E-03	0.02	639.06
Track mounted cranes	2270002045	200	diesel	106	12	43%	12	10,089	0.01	0.14	0.03	6.58E-03	6.39E-03	4.19E-04	2.84E-03	152.20	8.21E-04	3.88E-03	153.37
equip	-	-	diesel	301	-	-	252	42,838	5.75E-02	1.27	0.60	2.39E-02	0.02	1.62E-03	-	482.12	6.06E-03	5.44E-04	482.43
O&M Building																			
Excavators or Backhoes	2270002036	150	diesel	108	10	59%	12	8,747	4.37E-03	0.09	0.03	6.60E-03	6.40E-03	3.54E-04	1.06E-03	131.96	3.67E-04	3.36E-03	132.97
Forklifts	2270003020	75	diesel	109	10	59%	8	3,238	7.48E-04	0.07	6.64E-03	1.15E-03	1.12E-03	1.29E-04	1.81E-04	48.85	5.66E-05	1.24E-03	49.22
Skid Steer Loaders	2270002072	150	diesel	116	10	21%	16	4,822	0.12	0.65	0.40	0.07	0.07	2.67E-04	0.03	72.74	6.15E-03	1.85E-03	73.45
Air compressor	2270006015	50	diesel	102	10	43%	4	779	2.39E-03	0.06	1.19E-02	1.56E-03	1.52E-03	3.40E-05	5.74E-04	11.75	2.59E-04	2.99E-04	11.84
Project Cleanup																			
Front end loader	2270002060	150	diesel	115	12	59%	8	6,997	7.78E-03	0.10	0.04	8.33E-03	8.08E-03	2.89E-04	1.87E-03	105.55	6.16E-04	2.69E-03	106.37
Motor grader	2270002048	100	diesel	110	12	59%	8	4,665	3.62E-03	0.06	0.02	5.99E-03	5.81E-03	1.92E-04	8.74E-04	70.37	3.07E-04	1.79E-03	70.92
Dump Truck	-	-	diesel	302	-	-	8	1,423	3.04E-03	0.05	0.02	1.46E-03	1.34E-03	5.41E-05	-	16.01	3.57E-04	3.48E-05	16.03
Transportation Trucks - material/waste	-	-	diesel	301	-	-	12	2,040	2.74E-03	0.06	0.03	1.14E-03	1.05E-03	7.70E-05	-	22.96	2.89E-04	2.59E-05	22.97
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and otherdelivery trucks, etc. daily	-	-	diesel	305	-	-	1,080	67,465	0.36	2.25	2.48	0.08	0.07	2.57E-03	-	759.27	0.06	3.76E-03	761.82
Worker Commute																			
Light Commercial Truck	-	-	diesel	305	-	-	1,584	98,948	0.53	3.30	3.64	0.11	0.10	3.77E-03	-	1113.60	0.08	5.52E-03	1117.33
Passenger Car	-	-	gasoline	306	-	-	1,056	35,535	0.34	0.22	5.02	8.44E-03	7.47E-03	2.66E-03	-	399.92	0.03	6.30E-03	402.55
							Total	**675,415**	**3.03**	**24.66**	**17.83**	**1.34**	**1.29**	**0.03**	**0.40**	**9,093.78**	**0.29**	**0.17**	**9,150.72**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2023.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 1 Solar (300 MW)

								Fuel Use	Emissions									
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	107	12	59%	20	23,325	1.42E-02	0.17	0.06	1.27E-02	1.23E-02	9.48E-04	3.43E-03	351.88	9.77E-04	8.96E-03	354.58
Excavator / Backhoe	2270002036	150	diesel	108	12	59%	20	17,494	8.74E-03	0.18	0.06	1.32E-02	1.28E-02	7.07E-04	2.11E-03	263.92	7.35E-04	6.72E-03	265.94
Loader / Skid Steer loader	2270002072	150	diesel	116	12	21%	20	7,233	0.19	0.97	0.59	0.11	0.11	4.01E-04	0.04	109.11	9.23E-03	2.78E-03	110.17
Motor grader	2270002048	100	diesel	110	12	59%	20	11,662	9.04E-03	0.15	0.06	1.50E-02	0.01	4.80E-04	2.19E-03	175.94	7.67E-04	4.48E-03	177.29
Vibratory Roller	2270002015	75	diesel	114	12	59%	15	7,284	8.68E-03	0.23	0.08	1.06E-02	1.03E-02	3.01E-04	2.09E-03	109.89	6.40E-04	2.80E-03	110.74
Dump / Belly Truck	-	-	diesel	302	-	-	60	10,670	0.02	0.40	0.17	1.09E-02	1.01E-02	4.06E-04	-	120.08	2.67E-03	2.61E-04	120.23
Water Truck	-	-	diesel	304	-	-	40	4,136	0.02	0.09	0.06	2.06E-03	1.90E-03	1.56E-04	-	46.54	6.76E-03	2.70E-04	46.79
Fuel Truck	-	-	diesel	304	-	-	10	1,034	3.99E-03	0.02	0.01	5.16E-04	4.75E-04	3.90E-05	-	11.64	1.69E-03	6.74E-05	11.70
Pile Driving (Solar)																			
Telehandler	2270003010	150	diesel	101	12	21%	15	5,442	0.05	0.32	0.17	0.03	0.03	2.53E-04	1.19E-02	82.09	2.71E-03	2.09E-03	82.78
PD10 Pile Driver	2270002081	50	diesel	112	12	59%	25	8,090	0.03	0.61	0.19	0.02	0.02	3.46E-04	6.88E-03	122.05	2.64E-03	3.11E-03	123.04
Tracked Skidsteer	2270002072	150	diesel	116	12	21%	10	3,616	0.09	0.48	0.30	0.06	0.05	2.01E-04	0.02	54.56	4.62E-03	1.39E-03	55.09
Loader Tractor	2270002066	150	diesel	118	12	21%	5	1,811	0.03	0.18	0.10	0.02	0.02	9.50E-05	7.86E-03	27.32	2.06E-03	6.96E-04	27.58
Fuel Truck	-	-	diesel	304	12	-	5	517	1.99E-03	1.15E-02	7.09E-03	2.58E-04	2.37E-04	1.95E-05	-	5.82	8.45E-04	3.37E-05	5.85
Electrical																			
Dozer	2270002069	200	diesel	107	12	59%	4	4,665	2.84E-03	0.03	1.23E-02	2.53E-03	2.46E-03	1.90E-04	6.85E-04	70.38	1.95E-04	1.79E-03	70.92
Tracked Skidsteer	2270002072	150	diesel	116	12	21%	20	7,233	0.19	0.97	0.59	0.11	0.11	4.01E-04	0.04	109.11	9.23E-03	2.78E-03	110.17
Roller	2270002015	75	diesel	114	12	59%	8	3,885	4.63E-03	0.12	0.04	5.64E-03	5.47E-03	1.61E-04	1.12E-03	58.61	3.41E-04	1.49E-03	59.06
Towable Air Compressor	2270006015	50	diesel	102	12	43%	4	934	2.86E-03	0.07	1.42E-02	1.88E-03	1.82E-03	4.07E-05	6.89E-04	14.09	3.11E-04	3.59E-04	14.21
Motor Grader	2270002048	100	diesel	110	12	59%	4	2,332	1.81E-03	0.03	1.21E-02	2.99E-03	2.90E-03	9.60E-05	4.37E-04	35.19	1.53E-04	8.96E-04	35.46
Trench Padder	2270002072	175	diesel	116	12	21%	4	1,688	0.04	0.23	0.14	0.03	0.03	9.36E-05	1.04E-02	25.46	2.15E-03	6.48E-04	25.71
Utility Tractor	2270002066	150	diesel	118	12	21%	4	1,449	0.03	0.15	0.08	0.02	0.02	7.60E-05	6.28E-03	21.85	1.65E-03	5.57E-04	22.06
Telehandler	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Boom Truck	2270003010	150	diesel	101	12	21%	12	4,353	0.04	0.26	0.13	0.03	0.03	2.02E-04	9.51E-03	65.67	2.17E-03	1.67E-03	66.23
Fork Truck for Spool Offload	2270003020	75	diesel	109	12	59%	8	3,886	8.97E-04	0.09	7.96E-03	1.38E-03	1.34E-03	1.55E-04	2.17E-04	58.62	6.80E-05	1.49E-03	59.07
Man Lift Bucket	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Trencher	2270002030	200	diesel	119	12	59%	8	9,327	0.02	0.23	0.07	1.47E-02	0.01	4.01E-04	4.68E-03	140.71	1.30E-03	3.58E-03	141.81
Excavators / Backhoes	2270002036	150	diesel	108	12	59%	8	6,998	3.50E-03	0.07	0.02	5.28E-03	5.12E-03	2.83E-04	8.45E-04	105.57	2.94E-04	2.69E-03	106.38
Winch Truck	2270002051	250	diesel	111	12	59%	8	11,663	3.57E-03	0.04	9.14E-03	1.84E-03	1.79E-03	4.65E-04	8.60E-04	175.95	1.62E-04	4.48E-03	177.29
Water Truck	-	-	diesel	304	-		4	414	1.59E-03	9.21E-03	5.67E-03	2.06E-04	1.90E-04	1.56E-05	-	4.65	6.76E-04	2.70E-05	4.68
Transportation Trucks - materials	-	-	diesel	301	-	-	32	5,440	7.30E-03	0.16	0.08	3.04E-03	2.79E-03	2.05E-04	-	61.22	7.70E-04	6.91E-05	61.26
Substation																			
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	8	6,998	3.50E-03	0.07	0.02	5.28E-03	5.12E-03	2.83E-04	8.45E-04	105.57	2.94E-04	2.69E-03	106.38
Bulldozer	2270002069	200	diesel	107	12	59%	8	9,330	5.69E-03	0.07	0.02	5.06E-03	4.91E-03	3.79E-04	1.37E-03	140.75	3.91E-04	3.58E-03	141.83
Concrete Trucks	2270002042	150	diesel	104	12	43%	16	10,067	0.13	1.44	0.37	0.08	0.07	5.58E-04	0.03	151.87	6.51E-03	3.87E-03	153.19
Drill Rig	2270002033	100	diesel	103	12	43%	8	3,356	0.04	0.47	0.12	0.03	0.03	1.86E-04	9.83E-03	50.63	2.28E-03	1.29E-03	51.07
Man Lift Bucket	2270003010	150	diesel	101	12	21%	8	2,902	0.03	0.17	0.09	0.02	0.02	1.35E-04	6.34E-03	43.78	1.45E-03	1.11E-03	44.15
Trencher	2270002030	200	diesel	119	12	59%	8	9,327	0.02	0.23	0.07	1.47E-02	1.43E-02	4.01E-04	4.68E-03	140.71	1.30E-03	3.58E-03	141.81
Winch Truck	2270002051	250	diesel	111	12	59%	4	5,831	1.79E-03	0.02	4.57E-03	9.20E-04	8.93E-04	2.32E-04	4.30E-04	87.98	8.10E-05	2.24E-03	88.65
Cranes	2270002045	200	diesel	106	12	43%	8	6,726	7.87E-03	0.10	0.02	4.39E-03	4.26E-03	2.80E-04	1.89E-03	101.47	5.47E-04	2.58E-03	102.25
Forklifts	2270003020	75	diesel	109	12	59%	8	3,886	8.97E-04	0.09	7.96E-03	1.38E-03	1.34E-03	1.55E-04	2.17E-04	58.62	6.80E-05	1.49E-03	59.07
Skid Steer Loaders	2270002072	150	diesel	116	12	21%	4	1,447	0.04	0.19	0.12	0.02	0.02	8.02E-05	8.91E-03	21.82	1.85E-03	5.56E-04	22.03
Dump Truck (Side or belly dump)	-	-	diesel	302	-	-	16	2,845	6.09E-03	0.11	0.04	2.92E-03	2.68E-03	1.08E-04	-	32.02	7.13E-04	6.96E-05	32.06
Solar Panel Installation																			
Tracked Skidsteer	2270002072	175	diesel	116	12	21%	25	10,548	0.27	1.41	0.87	0.16	0.16	5.85E-04	0.06	159.12	1.35E-02	4.05E-03	160.67
Loader	2270002060	150	diesel	115	12	59%	5	4,373	4.86E-03	0.06	0.02	5.21E-03	5.05E-03	1.81E-04	1.17E-03	65.97	3.85E-04	1.68E-03	66.48
Telehandler	2270003010	150	diesel	101	12	21%	15	5,442	0.05	0.32	0.17	0.03	0.03	2.53E-04	1.19E-02	82.09	2.71E-03	2.09E-03	82.78
Project Cleanup																			
Telehandler	2270003010	150	diesel	101	12	21%	10	3,628	0.03	0.21	0.11	0.02	0.02	1.69E-04	7.92E-03	54.73	1.81E-03	1.39E-03	55.19
Tracked Skidsteer	2270002072	150	diesel	116	12	21%	20	7,233	0.19	0.97	0.59	0.11	0.11	4.01E-04	0.04	109.11	9.23E-03	2.78E-03	110.17
Transportation Trucks - material/waste	-	-	diesel	301	-	-	9	1,530	2.05E-03	0.05	0.02	8.54E-04	7.86E-04	5.78E-05	-	17.22	2.16E-04	1.94E-05	17.23
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, andother delivery trucks, etc. daily	-	-	diesel	305	-	-	900	56,221	0.30	1.88	2.07	0.06	0.06	2.14E-03	-	632.73	0.05	3.14E-03	634.85
Buggies	-	-	gasoline	306	-	-	384	12,922	0.12	0.08	1.83	3.07E-03	2.72E-03	9.66E-04	-	145.43	1.09E-02	2.29E-03	146.38
Busses	-	-	diesel	303	-	-	72	6,857	0.01	0.14	0.09	3.08E-03	2.84E-03	2.59E-04	-	77.17	1.75E-03	2.61E-04	77.30
							Total	**343,847**	**2.12**	**14.67**	**9.94**	**1.15**	**1.11**	**0.02**	**0.39**	**4,794.30**	**0.16**	**0.10**	**4,827.91**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e. days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2023.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 1 Battery (150 MW)

								Fuel Use	Emissions									
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	107	12	59%	4	4,665	2.84E-03	0.03	1.23E-02	2.53E-03	2.46E-03	1.90E-04	6.85E-04	70.38	1.95E-04	1.79E-03	70.92
Excavator / Backhoe	2270002036	150	diesel	108	12	59%	4	3,499	1.75E-03	0.04	1.14E-02	2.64E-03	2.56E-03	1.41E-04	4.22E-04	52.78	1.47E-04	1.34E-03	53.19
Loader / Skid Steer loader	2270002072	150	diesel	116	12	21%	2	723	0.02	0.10	0.06	1.12E-02	1.08E-02	4.01E-05	4.46E-03	10.91	9.23E-04	2.78E-04	11.02
Motor grader	2270002048	100	diesel	110	12	59%	2	1,166	9.04E-04	1.49E-02	6.04E-03	1.50E-03	1.45E-03	4.80E-05	2.19E-04	17.59	7.67E-05	4.48E-04	17.73
Vibratory Roller	2270002015	75	diesel	114	12	59%	2	971	1.16E-03	0.03	1.10E-02	1.41E-03	1.37E-03	4.01E-05	2.79E-04	14.65	8.53E-05	3.73E-04	14.77
Dump / Belly Truck	-	-	diesel	302	-	-	4	711	1.52E-03	0.03	1.11E-02	7.29E-04	6.71E-04	2.71E-05	-	8.01	1.78E-04	1.74E-05	8.02
Water Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Fuel Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	106	12	43%	2	1,681	1.97E-03	0.02	5.50E-03	1.10E-03	1.06E-03	6.99E-05	4.73E-04	25.37	1.37E-04	6.46E-04	25.56
Concrete Truck	2270002042	150	diesel	104	12	43%	8	5,034	0.06	0.72	0.19	0.04	0.04	2.79E-04	0.02	75.94	3.25E-03	1.93E-03	76.59
Backhoe or Excavator	2270002036	150	diesel	108	12	59%	4	3,499	1.75E-03	0.04	1.14E-02	2.64E-03	2.56E-03	1.41E-04	4.22E-04	52.78	1.47E-04	1.34E-03	53.19
Forklifts	2270003020	75	diesel	109	12	59%	4	1,943	4.49E-04	0.04	3.98E-03	6.91E-04	6.71E-04	7.74E-05	1.08E-04	29.31	3.40E-05	7.46E-04	29.53
Skid Steer loader	2270002072	150	diesel	116	12	21%	2	723	0.02	0.10	0.06	1.12E-02	1.08E-02	4.01E-05	4.46E-03	10.91	9.23E-04	2.78E-04	11.02
Dump Truck	-	-	diesel	302	-	-	4	711	1.52E-03	0.03	1.11E-02	7.29E-04	6.71E-04	2.71E-05	-	8.01	1.78E-04	1.74E-05	8.02
Transportation Trucks - materials	-	-	diesel	301	-	-	4	680	9.12E-04	0.02	9.58E-03	3.80E-04	3.49E-04	2.57E-05	-	7.65	9.62E-05	8.63E-06	7.66
Water Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Fuel Truck	-	-	diesel	304	-	-	2	207	7.97E-04	4.60E-03	2.84E-03	1.03E-04	9.50E-05	7.80E-06	-	2.33	3.38E-04	1.35E-05	2.34
Electrical																			
Boom Truck	2270003010	150	diesel	101	12	21%	2	726	6.59E-03	0.04	0.02	4.45E-03	4.32E-03	3.37E-05	1.58E-03	10.95	3.62E-04	2.79E-04	11.04
Fork Truck for Spool Offload	2270003020	75	diesel	109	12	59%	2	971	2.24E-04	0.02	1.99E-03	3.46E-04	3.35E-04	3.87E-05	5.42E-05	14.65	1.70E-05	3.73E-04	14.77
Man Lift Bucket	2270003010	150	diesel	101	12	21%	2	726	6.59E-03	0.04	0.02	4.45E-03	4.32E-03	3.37E-05	1.58E-03	10.95	3.62E-04	2.79E-04	11.04
Trencher	2270002030	200	diesel	119	12	59%	2	2,332	4.87E-03	0.06	0.02	3.67E-03	3.56E-03	1.00E-04	1.17E-03	35.18	3.26E-04	8.96E-04	35.45
Excavators / Backhoes	2270002036	150	diesel	108	12	59%	2	1,749	8.74E-04	0.02	5.72E-03	1.32E-03	1.28E-03	7.07E-05	2.11E-04	26.39	7.35E-05	6.72E-04	26.59
Transportation Trucks - materials	-	-	diesel	301	-	-	4	680	9.12E-04	0.02	9.58E-03	3.80E-04	3.49E-04	2.57E-05	-	7.65	9.62E-05	8.63E-06	7.66
Project Cleanup																			
Front end loader	2270002060	150	diesel	115	12	59%	1	875	9.72E-04	1.22E-02	4.79E-03	1.04E-03	1.01E-03	3.61E-05	2.34E-04	13.19	7.69E-05	3.36E-04	13.30
Motor grader	2270002048	100	diesel	110	12	59%	1	583	4.52E-04	7.43E-03	3.02E-03	7.49E-04	7.26E-04	2.40E-05	1.09E-04	8.80	3.84E-05	2.24E-04	8.86
Dump Truck	-	-	diesel	302	-	-	1	178	3.80E-04	6.63E-03	2.79E-03	1.82E-04	1.68E-04	6.76E-06	-	2.00	4.46E-05	4.35E-06	2.00
Transportation Trucks - material/waste	-	-	diesel	301	-	-	1	170	2.28E-04	5.05E-03	2.39E-03	9.49E-05	8.73E-05	6.42E-06	-	1.91	2.41E-05	2.16E-06	1.91
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and otherdelivery trucks, etc. daily	-	-	diesel	305	-	-	400	24,987	0.13	0.83	0.92	0.03	0.03	9.53E-04	-	281.21	0.02	1.39E-03	282.16
							Total	**60,810**	**0.27**	**2.29**	**1.42**	**0.12**	**0.11**	**2.51E-03**	**0.03**	**806.49**	**0.03**	**1.37E-02**	**811.34**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7,
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2023.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

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Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 2a Wind (250 MW)

								Fuel Use	Emissions									
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	32	37,320	0.02	0.22	0.07	1.43E-02	1.39E-02	1.50E-03	4.34E-03	563.02	1.13E-03	1.43E-02	567.33
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	32	27,991	1.09E-02	0.23	0.07	0.02	1.47E-02	1.12E-03	2.62E-03	422.28	8.82E-04	1.08E-02	425.50
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	32	11,573	0.29	1.53	0.94	0.18	0.17	6.42E-04	0.07	174.59	0.02	4.45E-03	176.30
Motor grader	2270002048	100	diesel	210	12	59%	32	18,660	1.02E-02	0.18	0.07	0.02	0.02	7.57E-04	2.46E-03	281.51	8.44E-04	7.17E-03	283.67
Vibratory Roller	2270002015	75	diesel	214	12	59%	24	11,655	1.02E-02	0.33	0.10	1.34E-02	1.30E-02	4.77E-04	2.47E-03	175.84	7.92E-04	4.48E-03	177.19
Dump / Belly Truck	-	-	diesel	402	-	-	96	16,839	0.03	0.59	0.26	1.44E-02	1.33E-02	6.39E-04	-	189.51	4.20E-03	4.17E-04	189.74
Water Truck	-	-	diesel	404	-	-	64	6,497	0.02	0.14	0.09	2.81E-03	2.58E-03	2.45E-04	-	73.12	1.08E-02	4.31E-04	73.52
Fuel Truck	-	-	diesel	404	-	-	16	1,624	6.06E-03	0.03	0.02	7.01E-04	6.45E-04	6.12E-05	-	18.28	2.70E-03	1.08E-04	18.38
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	12	10,089	9.11E-03	0.11	0.03	5.07E-03	4.92E-03	4.14E-04	2.19E-03	152.21	6.27E-04	3.88E-03	153.38
Concrete pump truck	2270002042	200	diesel	205	12	43%	8	6,713	0.07	0.89	0.22	0.04	0.04	3.72E-04	0.02	101.28	3.78E-03	2.58E-03	102.14
Concrete Truck	2270002042	150	diesel	204	12	43%	64	40,269	0.50	5.69	1.47	0.30	0.29	2.23E-03	0.12	607.51	0.03	0.02	612.79
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	16	13,995	5.43E-03	0.12	0.03	7.55E-03	7.33E-03	5.62E-04	1.31E-03	211.14	4.41E-04	5.38E-03	212.75
Forklifts	2270003020	75	diesel	209	12	59%	12	5,828	1.19E-03	0.13	9.02E-03	1.62E-03	1.57E-03	2.32E-04	2.88E-04	87.93	8.72E-05	2.24E-03	88.60
Skid Steer loader	2270002072	150	diesel	216	12	21%	8	2,893	0.07	0.38	0.23	0.04	0.04	1.60E-04	0.02	43.65	3.78E-03	1.11E-03	44.07
Dump Truck	-	-	diesel	402	-	-	24	4,210	8.02E-03	0.15	0.06	3.61E-03	3.32E-03	1.60E-04	-	47.38	1.05E-03	1.04E-04	47.43
Transportation Trucks - materials	-	-	diesel	401	-	-	24	3,993	5.07E-03	0.11	0.06	1.98E-03	1.83E-03	1.51E-04	-	44.94	5.54E-04	5.18E-05	44.97
Water Truck	-	-	diesel	404	-	-	12	1,218	4.55E-03	0.03	0.02	5.26E-04	4.84E-04	4.59E-05	-	13.71	2.02E-03	8.08E-05	13.79
Fuel Truck	-	-	diesel	404	-	-	8	812	3.03E-03	0.02	1.10E-02	3.51E-04	3.23E-04	3.06E-05	-	9.14	1.35E-03	5.39E-05	9.19
Electrical																			
Boom Truck	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	12	5,828	1.19E-03	0.13	9.02E-03	1.62E-03	1.57E-03	2.32E-04	2.88E-04	87.93	8.72E-05	2.24E-03	88.60
Man Lift Bucket	2270003010	150	diesel	201	12	21%	12	4,354	0.04	0.24	0.12	0.02	0.02	2.00E-04	8.67E-03	65.68	2.04E-03	1.67E-03	66.23
Trencher	2270002030	200	diesel	219	12	59%	12	13,992	0.02	0.29	0.09	0.02	0.02	5.93E-04	5.88E-03	211.08	1.64E-03	5.38E-03	212.73
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	12	10,497	4.07E-03	0.09	0.03	5.66E-03	5.49E-03	4.21E-04	9.84E-04	158.35	3.31E-04	4.03E-03	159.56
Winch Truck	2270002051	250	diesel	211	12	59%	8	11,663	3.34E-03	0.04	0.01	1.56E-03	1.51E-03	4.64E-04	8.05E-04	175.95	1.41E-04	4.48E-03	177.29
Transportation Trucks - materials	-	-	diesel	401	-	-	32	5,324	6.76E-03	0.15	0.07	2.65E-03	2.43E-03	2.01E-04	-	59.91	7.39E-04	6.91E-05	59.95
Substation																			
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	20	17,494	6.79E-03	0.14	0.04	9.44E-03	9.16E-03	7.02E-04	1.64E-03	263.92	5.52E-04	6.72E-03	265.94
Bulldozer	2270002069	200	diesel	207	12	59%	20	23,325	1.13E-02	0.13	0.04	8.96E-03	8.69E-03	9.40E-04	2.71E-03	351.89	7.09E-04	8.96E-03	354.58
Concrete Trucks	2270002042	150	diesel	204	12	43%	40	25,168	0.31	3.56	0.92	0.19	0.18	1.40E-03	0.07	379.70	0.02	9.67E-03	382.99
Drill Rig	2270002033	100	diesel	203	12	43%	20	8,390	0.10	1.14	0.29	0.07	0.06	4.63E-04	0.02	126.58	5.67E-03	3.22E-03	127.68
Man Lift Bucket	2270003010	150	diesel	201	12	21%	20	7,256	0.06	0.39	0.20	0.04	0.04	3.34E-04	1.44E-02	109.47	3.40E-03	2.79E-03	110.39
Trencher	2270002030	200	diesel	219	12	59%	20	23,320	0.04	0.48	0.15	0.03	0.03	9.89E-04	9.81E-03	351.81	2.73E-03	8.96E-03	354.55
Winch Truck	2270002051	250	diesel	211	12	59%	10	14,579	4.18E-03	0.05	9.67E-03	1.95E-03	1.89E-03	5.80E-04	1.01E-03	219.94	1.76E-04	5.60E-03	221.61
Cranes	2270002045	200	diesel	206	12	43%	20	16,815	0.02	0.18	0.04	8.45E-03	8.19E-03	6.91E-04	3.65E-03	253.68	1.05E-03	6.46E-03	255.63
Forklifts	2270003020	75	diesel	209	12	59%	20	9,714	1.98E-03	0.21	0.02	2.70E-03	2.62E-03	3.86E-04	4.79E-04	146.55	1.45E-04	3.73E-03	147.67
Skid Steer Loaders	2270002072	150	diesel	216	12	21%	10	3,617	0.09	0.48	0.29	0.06	0.05	2.01E-04	0.02	54.56	4.73E-03	1.39E-03	55.09
Dump Truck (Side or belly dump)	-	-	diesel	402	-	-	40	7,016	1.34E-02	0.24	0.11	6.02E-03	5.54E-03	2.66E-04	-	78.96	1.75E-03	1.74E-04	79.06
Wind Turbine Assembly & Erection																			
Man Lift Bucket	2270003010	150	diesel	201	12	21%	40	14,513	0.12	0.79	0.41	0.08	0.08	6.67E-04	0.03	218.95	6.81E-03	5.58E-03	220.78
Forklift	2270003020	75	diesel	209	12	59%	20	9,714	1.98E-03	0.21	0.02	2.70E-03	2.62E-03	3.86E-04	4.79E-04	146.55	1.45E-04	3.73E-03	147.67
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	50	42,038	0.04	0.46	0.11	0.02	0.02	1.73E-03	9.13E-03	634.19	2.61E-03	0.02	639.07
Track mounted cranes	2270002045	200	diesel	206	12	43%	12	10,089	9.11E-03	0.11	0.03	5.07E-03	4.92E-03	4.14E-04	2.19E-03	152.21	6.27E-04	3.88E-03	153.38
erials & equip	-	-	diesel	401	-	-	252	41,924	5.32E-02	1.19	0.58	0.02	0.02	1.58E-03	-	471.83	5.82E-03	5.44E-04	472.13
Transmission Line																			
Cranes	2270002045	200	diesel	206	8	43%	8	4,484	4.05E-03	0.05	1.14E-02	2.25E-03	2.18E-03	1.84E-04	9.74E-04	67.65	2.79E-04	1.72E-03	68.17
Bucket Trucks	2270003010	150	diesel	201	8	21%	20	4,838	0.04	0.26	0.14	0.03	0.03	2.22E-04	9.63E-03	72.98	2.27E-03	1.86E-03	73.59
Wire Pullers	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Wire Tensioners	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Excavators or Backhoes	2270002036	150	diesel	208	4	59%	18	5,248	2.04E-03	0.04	1.31E-02	2.83E-03	2.75E-03	2.11E-04	4.92E-04	79.18	1.65E-04	2.02E-03	79.78
Forklifts	2270003020	75	diesel	209	4	59%	12	1,943	3.97E-04	0.04	3.01E-03	5.41E-04	5.25E-04	7.73E-05	9.59E-05	29.31	2.91E-05	7.46E-04	29.53
Truck / track diggers	2270002036	150	diesel	208	6	59%	4	1,749	6.79E-04	1.45E-02	4.35E-03	9.44E-04	9.16E-04	7.02E-05	1.64E-04	26.39	5.52E-05	6.72E-04	26.59
Dozers	2270002069	200	diesel	207	4	59%	5	1,944	9.39E-04	1.12E-02	3.64E-03	7.47E-04	7.24E-04	7.83E-05	2.26E-04	29.32	5.91E-05	7.47E-04	29.55
UTVs	2270001060	75	diesel	217	2	21%	6	201	2.68E-03	0.02	1.32E-02	1.79E-03	1.74E-03	9.71E-06	6.44E-04	3.04	1.07E-04	7.73E-05	3.06
Tractor	2270002066	150	diesel	218	6	21%	4	725	1.13E-02	0.06	0.04	7.33E-03	7.11E-03	3.68E-05	2.72E-03	10.93	7.19E-04	2.78E-04	11.03
Skid Steer Loaders	2270002072	150	diesel	216	6	21%	12	2,170	0.05	0.29	0.18	0.03	0.03	1.20E-04	1.32E-02	32.74	2.84E-03	8.34E-04	33.06
Underground boring equipment	2270002033	100	diesel	203	8	43%	12	3,356	0.04	0.45	0.12	0.03	0.03	1.85E-04	9.55E-03	50.63	2.27E-03	1.29E-03	51.07
Tractor Trailers	-	-	diesel	401	-	-	6	998	1.27E-03	0.03	1.39E-02	4.96E-04	4.56E-04	3.76E-05	-	11.23	1.39E-04	1.30E-05	11.24
Fuel Trucks / Trailers	-	-	diesel	404	-	-	6	609	2.27E-03	1.29E-02	8.23E-03	2.63E-04	2.42E-04	2.30E-05	-	6.86	1.01E-03	4.04E-05	6.89

December 2022

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 2a Wind (250 MW)

								Fuel Use	Emissions									
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
O&M Building																			
Excavators or Backhoes	2270002036	150	diesel	208	10	59%	12	8,747	3.39E-03	0.07	0.02	4.72E-03	4.58E-03	3.51E-04	8.20E-04	131.96	2.76E-04	3.36E-03	132.97
Forklifts	2270003020	75	diesel	209	10	59%	8	3,238	6.61E-04	0.07	5.01E-03	9.01E-04	8.74E-04	1.29E-04	1.60E-04	48.85	4.85E-05	1.24E-03	49.22
Skid Steer Loaders	2270002072	150	diesel	216	10	21%	16	4,822	0.12	0.64	0.39	0.07	0.07	2.67E-04	0.03	72.75	6.31E-03	1.85E-03	73.46
Air compressor	2270006015	50	diesel	202	10	43%	4	779	2.14E-03	0.06	1.04E-02	1.32E-03	1.28E-03	3.34E-05	5.14E-04	11.75	2.47E-04	2.99E-04	11.84
Project Cleanup																			
Front end loader	2270002060	150	diesel	215	12	59%	8	6,997	5.91E-03	0.08	0.03	6.87E-03	6.66E-03	2.86E-04	1.43E-03	105.56	4.68E-04	2.69E-03	106.37
Motor grader	2270002048	100	diesel	210	12	59%	8	4,665	2.55E-03	0.04	0.02	3.95E-03	3.84E-03	1.89E-04	6.16E-04	70.38	2.11E-04	1.79E-03	70.92
Dump Truck	-	-	diesel	402	-	-	8	1,403	2.67E-03	0.05	0.02	1.20E-03	1.11E-03	5.32E-05	-	15.79	3.50E-04	3.48E-05	15.81
aterial/waste	-	-	diesel	401	-	-	12	1,996	2.53E-03	0.06	0.03	9.92E-04	9.13E-04	7.53E-05	-	22.47	2.77E-04	2.59E-05	22.48
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. daily	-	-	diesel	405	-	-	1,400	84,833	0.41	2.58	2.79	0.09	0.09	3.23E-03	-	954.75	0.07	4.88E-03	958.05
Worker Commute																			
Light Commercial Truck	-	-	diesel	405	-	-	1,412	85,560	0.41	2.60	2.82	0.10	0.09	3.26E-03	-	962.93	0.07	4.92E-03	966.26
Passenger Car	-	-	gasoline	406	-	-	942	30,938	0.28	0.16	4.33	7.47E-03	6.61E-03	2.31E-03	-	348.19	0.02	5.36E-03	350.41
							Total	**817,455**	**3.47**	**29.48**	**18.44**	**1.68**	**1.62**	**0.04**	**0.53**	**11,198.93**	**0.33**	**0.22**	**11,272.03**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 2a Solar (250 MW)

								Fuel Use	Emissions										
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	16	18,660	9.01E-03	0.11	0.03	7.17E-03	6.95E-03	7.52E-04	2.17E-03	281.51	5.67E-04	7.17E-03	283.66
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	16	13,995	5.43E-03	0.12	0.03	7.55E-03	7.33E-03	5.62E-04	1.31E-03	211.14	4.41E-04	5.38E-03	212.75
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	16	5,787	0.15	0.76	0.47	0.09	0.09	3.21E-04	0.04	87.30	7.57E-03	2.22E-03	88.15
Motor grader	2270002048	100	diesel	210	12	59%	16	9,330	5.10E-03	0.09	0.03	7.91E-03	7.67E-03	3.78E-04	1.23E-03	140.75	4.22E-04	3.58E-03	141.83
Vibratory Roller	2270002015	75	diesel	214	12	59%	12	5,828	5.11E-03	0.17	0.05	6.72E-03	6.52E-03	2.38E-04	1.23E-03	87.92	3.96E-04	2.24E-03	88.60
Dump / Belly Truck	-	-	diesel	402	-	-	48	8,419	0.02	0.29	0.13	7.22E-03	6.64E-03	3.19E-04	-	94.76	2.10E-03	2.09E-04	94.87
Water Truck	-	-	diesel	404	-	-	32	3,249	1.21E-02	0.07	0.04	1.40E-03	1.29E-03	1.22E-04	-	36.56	5.39E-03	2.15E-04	36.76
Fuel Truck	-	-	diesel	404	-	-	8	812	3.03E-03	0.02	1.10E-02	3.51E-04	3.23E-04	3.06E-05	-	9.14	1.35E-03	5.39E-05	9.19
Pile Driving (Solar)																			
Telehandler	2270003010	150	diesel	201	12	21%	15	5,442	0.05	0.29	0.15	0.03	0.03	2.50E-04	1.08E-02	82.11	2.55E-03	2.09E-03	82.79
PD10 Pile Driver	2270002081	50	diesel	212	12	59%	25	8,090	0.03	0.59	0.16	0.02	0.02	3.42E-04	6.04E-03	122.06	2.50E-03	3.11E-03	123.04
Tracked Skidsteer	2270002072	150	diesel	216	12	21%	10	3,617	0.09	0.48	0.29	0.06	0.05	2.01E-04	0.02	54.56	4.73E-03	1.39E-03	55.09
Loader Tractor	2270002066	150	diesel	218	12	21%	5	1,812	0.03	0.16	0.09	0.02	0.02	9.21E-05	6.79E-03	27.33	1.80E-03	6.96E-04	27.58
Fuel Truck	-	-	diesel	404	-	-	5	508	1.89E-03	1.08E-02	6.86E-03	2.19E-04	2.02E-04	1.91E-05	-	5.71	8.43E-04	3.37E-05	5.74
Electrical																			
Dozer	2270002069	200	diesel	207	12	59%	4	4,665	2.25E-03	0.03	8.73E-03	1.79E-03	1.74E-03	1.88E-04	5.43E-04	70.38	1.42E-04	1.79E-03	70.92
Tracked Skidsteer	2270002072	150	diesel	216	12	21%	20	7,233	0.18	0.96	0.58	0.11	0.11	4.01E-04	0.04	109.12	9.46E-03	2.78E-03	110.19
Roller	2270002015	75	diesel	214	12	59%	8	3,885	3.41E-03	0.11	0.03	4.48E-03	4.34E-03	1.59E-04	8.22E-04	58.61	2.64E-04	1.49E-03	59.06
Towable Air Compressor	2270006015	50	diesel	202	12	43%	4	934	2.56E-03	0.07	1.25E-02	1.59E-03	1.54E-03	4.00E-05	6.16E-04	14.10	2.96E-04	3.59E-04	14.21
Motor Grader	2270002048	100	diesel	210	12	59%	4	2,332	1.27E-03	0.02	8.38E-03	1.98E-03	1.92E-03	9.46E-05	3.08E-04	35.19	1.05E-04	8.96E-04	35.46
Trench Padder	2270002072	175	diesel	216	12	21%	4	1,688	0.04	0.22	0.14	0.03	0.02	9.36E-05	1.03E-02	25.46	2.21E-03	6.48E-04	25.71
Utility Tractor	2270002066	150	diesel	218	12	21%	4	1,449	0.02	0.13	0.07	1.47E-02	1.42E-02	7.37E-05	5.43E-03	21.86	1.44E-03	5.57E-04	22.07
Telehandler	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Boom Truck	2270003010	150	diesel	201	12	21%	12	4,354	0.04	0.24	0.12	0.02	0.02	2.00E-04	8.67E-03	65.68	2.04E-03	1.67E-03	66.23
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	8	3,886	7.93E-04	0.08	6.01E-03	1.08E-03	1.05E-03	1.55E-04	1.92E-04	58.62	5.81E-05	1.49E-03	59.07
Man Lift Bucket	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Trencher	2270002030	200	diesel	219	12	59%	8	9,328	0.02	0.19	0.06	1.21E-02	1.17E-02	3.96E-04	3.92E-03	140.72	1.09E-03	3.58E-03	141.82
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	8	6,998	2.72E-03	0.06	0.02	3.78E-03	3.66E-03	2.81E-04	6.56E-04	105.57	2.21E-04	2.69E-03	106.38
Winch Truck	2270002051	250	diesel	211	12	59%	12	17,494	5.02E-03	0.06	1.16E-02	2.34E-03	2.27E-03	6.96E-04	1.21E-03	263.93	2.11E-04	6.72E-03	265.94
Water Truck	-	-	diesel	404	-	-	4	406	1.52E-03	8.61E-03	5.49E-03	1.75E-04	1.61E-04	1.53E-05	-	4.57	6.74E-04	2.69E-05	4.60
Transportation Trucks - materials	-	-	diesel	401	-	-	32	5,324	6.76E-03	0.15	0.07	2.65E-03	2.43E-03	2.01E-04	-	59.91	7.39E-04	6.91E-05	59.95
Substation																			
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	8	6,998	2.72E-03	0.06	0.02	3.78E-03	3.66E-03	2.81E-04	6.56E-04	105.57	2.21E-04	2.69E-03	106.38
Bulldozer	2270002069	200	diesel	207	12	59%	8	9,330	4.50E-03	0.05	0.02	3.58E-03	3.48E-03	3.76E-04	1.09E-03	140.76	2.83E-04	3.58E-03	141.83
Concrete Trucks	2270002042	150	diesel	204	12	43%	16	10,067	0.12	1.42	0.37	0.08	0.07	5.58E-04	0.03	151.88	6.67E-03	3.87E-03	153.20
Drill Rig	2270002033	100	diesel	203	12	43%	8	3,356	0.04	0.45	0.12	0.03	0.03	1.85E-04	9.55E-03	50.63	2.27E-03	1.29E-03	51.07
Man Lift Bucket	2270003010	150	diesel	201	12	21%	8	2,903	0.02	0.16	0.08	0.02	0.02	1.33E-04	5.78E-03	43.79	1.36E-03	1.12E-03	44.16
Trencher	2270002030	200	diesel	219	12	59%	8	9,328	0.02	0.19	0.06	1.21E-02	1.17E-02	3.96E-04	3.92E-03	140.72	1.09E-03	3.58E-03	141.82
Winch Truck	2270002051	250	diesel	211	12	59%	4	5,831	1.67E-03	0.02	3.87E-03	7.79E-04	7.56E-04	2.32E-04	4.02E-04	87.98	7.03E-05	2.24E-03	88.65
Cranes	2270002045	200	diesel	206	12	43%	8	6,726	6.08E-03	0.07	0.02	3.38E-03	3.28E-03	2.76E-04	1.46E-03	101.47	4.18E-04	2.58E-03	102.25
Forklifts	2270003020	75	diesel	209	12	59%	8	3,886	7.93E-04	0.08	6.01E-03	1.08E-03	1.05E-03	1.55E-04	1.92E-04	58.62	5.81E-05	1.49E-03	59.07
Skid Steer Loaders	2270002072	150	diesel	216	12	21%	4	1,447	0.04	0.19	0.12	0.02	0.02	8.02E-05	8.79E-03	21.82	1.89E-03	5.56E-04	22.04
Dump Truck (Side or belly dump)	-	-	diesel	402	-	-	16	2,806	5.35E-03	0.10	0.04	2.41E-03	2.21E-03	1.06E-04	-	31.59	7.00E-04	6.95E-05	31.62
Solar Panel Installation																			
Tracked Skidsteer	2270002072	175	diesel	216	12	21%	25	10,548	0.27	1.39	0.85	0.16	0.16	5.85E-04	0.06	159.14	1.38E-02	4.05E-03	160.69
Loader	2270002060	150	diesel	215	12	59%	5	4,373	3.70E-03	0.05	0.02	4.29E-03	4.16E-03	1.79E-04	8.91E-04	65.98	2.92E-04	1.68E-03	66.48
Telehandler	2270003010	150	diesel	201	12	21%	15	5,442	0.05	0.29	0.15	0.03	0.03	2.50E-04	1.08E-02	82.11	2.55E-03	2.09E-03	82.79
Project Cleanup																			
Telehandler	2270003010	150	diesel	201	12	21%	10	3,628	0.03	0.20	0.10	0.02	0.02	1.67E-04	7.22E-03	54.74	1.70E-03	1.39E-03	55.19
Tracked Skidsteer	2270002072	150	diesel	216	12	21%	20	7,233	0.18	0.96	0.58	0.11	0.11	4.01E-04	0.04	109.12	9.46E-03	2.78E-03	110.19
Transportation Trucks - material/waste	-	-	diesel	401	-	-	9	1,497	1.90E-03	0.04	0.02	7.44E-04	6.85E-04	5.65E-05	-	16.85	2.08E-04	1.94E-05	16.86
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, andother delivery trucks, etc. daily	-	-	diesel	405	-	-	825	49,991	0.24	1.52	1.65	0.06	0.05	1.90E-03	-	562.62	0.04	2.87E-03	564.56
Buggies	-	-	gasoline	406	-	-	352	11,561	0.11	0.06	1.62	2.79E-03	2.47E-03	8.64E-04	-	130.11	9.33E-03	2.00E-03	130.94
Busses	-	-	diesel	403	-	-	66	6,175	8.76E-03	0.12	0.08	2.85E-03	2.62E-03	2.33E-04	-	69.50	1.54E-03	2.39E-04	69.61
							Total	**324,457**	**1.92**	**13.23**	**8.75**	**1.05**	**1.01**	**1.43E-02**	**0.36**	**4,547.13**	**0.15**	**0.10**	**4,579.36**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e. days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 2a Battery (150 MW)

								Fuel Use	Emissions									
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	4	4,665	2.25E-03	0.03	8.73E-03	1.79E-03	1.74E-03	1.88E-04	5.43E-04	70.38	1.42E-04	1.79E-03	70.92
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	4	3,499	1.36E-03	0.03	8.70E-03	1.89E-03	1.83E-03	1.40E-04	3.28E-04	52.78	1.10E-04	1.34E-03	53.19
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	2	723	0.02	0.10	0.06	1.10E-02	1.07E-02	4.01E-05	4.40E-03	10.91	9.46E-04	2.78E-04	11.02
Motor grader	2270002048	100	diesel	210	12	59%	2	1,166	6.37E-04	1.12E-02	4.19E-03	9.88E-04	9.59E-04	4.73E-05	1.54E-04	17.59	5.27E-05	4.48E-04	17.73
Vibratory Roller	2270002015	75	diesel	214	12	59%	2	971	8.52E-04	0.03	8.55E-03	1.12E-03	1.09E-03	3.97E-05	2.05E-04	14.65	6.60E-05	3.73E-04	14.77
Dump / Belly Truck	-	-	diesel	402	-	-	4	702	1.34E-03	0.02	1.07E-02	6.02E-04	5.54E-04	2.66E-05	-	7.90	1.75E-04	1.74E-05	7.91
Water Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Fuel Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	2	1,682	1.52E-03	0.02	4.29E-03	8.45E-04	8.19E-04	6.91E-05	3.65E-04	25.37	1.05E-04	6.46E-04	25.56
Concrete Truck	2270002042	150	diesel	204	12	43%	8	5,034	0.06	0.71	0.18	0.04	0.04	2.79E-04	1.49E-02	75.94	3.33E-03	1.93E-03	76.60
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	4	3,499	1.36E-03	0.03	8.70E-03	1.89E-03	1.83E-03	1.40E-04	3.28E-04	52.78	1.10E-04	1.34E-03	53.19
Forklifts	2270003020	75	diesel	209	12	59%	4	1,943	3.97E-04	0.04	3.01E-03	5.41E-04	5.25E-04	7.73E-05	9.59E-05	29.31	2.91E-05	7.46E-04	29.53
Skid Steer loader	2270002072	150	diesel	216	12	21%	2	723	0.02	0.10	0.06	1.10E-02	1.07E-02	4.01E-05	4.40E-03	10.91	9.46E-04	2.78E-04	11.02
Dump Truck	-	-	diesel	402	-	-	4	702	1.34E-03	0.02	1.07E-02	6.02E-04	5.54E-04	2.66E-05	-	7.90	1.75E-04	1.74E-05	7.91
Transportation Trucks - materials	-	-	diesel	401	-	-	4	665	8.45E-04	0.02	9.26E-03	3.31E-04	3.04E-04	2.51E-05	-	7.49	9.24E-05	8.63E-06	7.49
Water Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Fuel Truck	-	-	diesel	404	-	-	2	203	7.58E-04	4.30E-03	2.74E-03	8.77E-05	8.06E-05	7.66E-06	-	2.29	3.37E-04	1.35E-05	2.30
Electrical																			
Boom Truck	2270003010	150	diesel	201	12	21%	2	726	6.00E-03	0.04	0.02	4.07E-03	3.95E-03	3.34E-05	1.44E-03	10.95	3.40E-04	2.79E-04	11.04
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	2	971	1.98E-04	0.02	1.50E-03	2.70E-04	2.62E-04	3.86E-05	4.79E-05	14.66	1.45E-05	3.73E-04	14.77
Man Lift Bucket	2270003010	150	diesel	201	12	21%	2	726	6.00E-03	0.04	0.02	4.07E-03	3.95E-03	3.34E-05	1.44E-03	10.95	3.40E-04	2.79E-04	11.04
Trencher	2270002030	200	diesel	219	12	59%	2	2,332	4.07E-03	0.05	0.02	3.03E-03	2.94E-03	9.89E-05	9.81E-04	35.18	2.73E-04	8.96E-04	35.45
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	2	1,749	6.79E-04	1.45E-02	4.35E-03	9.44E-04	9.16E-04	7.02E-05	1.64E-04	26.39	5.52E-05	6.72E-04	26.59
Transportation Trucks - materials	-	-	diesel	401	-	-	4	665	8.45E-04	0.02	9.26E-03	3.31E-04	3.04E-04	2.51E-05	-	7.49	9.24E-05	8.63E-06	7.49
Project Cleanup																			
Front end loader	2270002060	150	diesel	215	12	59%	1	875	7.39E-04	9.78E-03	3.89E-03	8.58E-04	8.33E-04	3.58E-05	1.78E-04	13.20	5.85E-05	3.36E-04	13.30
Motor grader	2270002048	100	diesel	210	12	59%	1	583	3.19E-04	5.58E-03	2.09E-03	4.94E-04	4.79E-04	2.36E-05	7.70E-05	8.80	2.64E-05	2.24E-04	8.86
Dump Truck	-	-	diesel	402	-	-	1	175	3.34E-04	6.09E-03	2.67E-03	1.50E-04	1.38E-04	6.66E-06	-	1.97	4.37E-05	4.35E-06	1.98
Transportation Trucks - material/waste	-	-	diesel	401	-	-	1	166	2.11E-04	4.72E-03	2.32E-03	8.27E-05	7.61E-05	6.27E-06	-	1.87	2.31E-05	2.16E-06	1.87
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and otherdelivery trucks, etc. daily	-	-	diesel	405	-	-	400	24,238	0.12	0.74	0.80	0.03	0.02	9.23E-04	-	272.79	0.02	1.39E-03	273.73
							Total	**59,993**	**0.25**	**2.12**	**1.27**	**0.11**	**0.11**	**2.47E-03**	**0.03**	**797.29**	**0.03**	**1.37E-02**	**802.14**

Notes:

1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7,
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 2b Wind (500 MW)

									Fuel Use	Emissions								
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Site Prep & Road Const																			
Bulldozer	2270002069	200	diesel	207	12	59%	32	37,320	0.02	0.22	0.07	1.43E-02	1.39E-02	1.50E-03	4.34E-03	563.02	1.13E-03	1.43E-02	567.33
Excavator / Backhoe	2270002036	150	diesel	208	12	59%	32	27,991	1.09E-02	0.23	0.07	0.02	1.47E-02	1.12E-03	2.62E-03	422.28	8.82E-04	1.08E-02	425.50
Loader / Skid Steer loader	2270002072	150	diesel	216	12	21%	32	11,573	0.29	1.53	0.94	0.18	0.17	6.42E-04	0.07	174.59	0.02	4.45E-03	176.30
Motor grader	2270002048	100	diesel	210	12	59%	32	18,660	1.02E-02	0.18	0.07	0.02	0.02	7.57E-04	2.46E-03	281.51	8.44E-04	7.17E-03	283.67
Vibratory Roller	2270002015	75	diesel	214	12	59%	24	11,655	1.02E-02	0.33	0.10	1.34E-02	1.30E-02	4.77E-04	2.47E-03	175.84	7.92E-04	4.48E-03	177.19
Dump / Belly Truck	-	-	diesel	402	-	-	96	16,839	0.03	0.59	0.26	1.44E-02	1.33E-02	6.39E-04	-	189.51	4.20E-03	4.17E-04	189.74
Water Truck	-	-	diesel	404	-	-	64	6,497	0.02	0.14	0.09	2.81E-03	2.58E-03	2.45E-04	-	73.12	1.08E-02	4.31E-04	73.52
Fuel Truck	-	-	diesel	404	-	-	16	1,624	6.06E-03	0.03	0.02	7.01E-04	6.45E-04	6.12E-05	-	18.28	2.70E-03	1.08E-04	18.38
Foundation																			
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	18	15,134	1.37E-02	0.16	0.04	7.60E-03	7.37E-03	6.22E-04	3.29E-03	228.31	9.41E-04	5.81E-03	230.07
Concrete pump truck	2270002042	200	diesel	205	12	43%	12	10,070	0.11	1.33	0.33	0.06	0.06	5.59E-04	0.03	151.92	5.67E-03	3.87E-03	153.22
Concrete Truck	2270002042	150	diesel	204	12	43%	96	60,404	0.74	8.53	2.20	0.45	0.44	3.35E-03	0.18	911.27	0.04	0.02	919.19
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	24	20,993	8.15E-03	0.17	0.05	1.13E-02	1.10E-02	8.43E-04	1.97E-03	316.71	6.62E-04	8.07E-03	319.13
Forklifts	2270003020	75	diesel	209	12	59%	18	8,743	1.78E-03	0.19	1.35E-02	2.43E-03	2.36E-03	3.48E-04	4.31E-04	131.90	1.31E-04	3.36E-03	132.90
Skid Steer loader	2270002072	150	diesel	216	12	21%	12	4,340	0.11	0.57	0.35	0.07	0.06	2.41E-04	0.03	65.47	5.68E-03	1.67E-03	66.11
Dump Truck	-	-	diesel	402	-	-	36	6,315	1.20E-02	0.22	0.10	5.42E-03	4.98E-03	2.40E-04	-	71.07	1.57E-03	1.56E-04	71.15
Transportation Trucks - materials	-	-	diesel	401	-	-	36	5,989	7.60E-03	0.17	0.08	2.98E-03	2.74E-03	2.26E-04	-	67.40	8.32E-04	7.77E-05	67.45
Water Truck	-	-	diesel	404	-	-	24	2,436	9.09E-03	0.05	0.03	1.05E-03	9.68E-04	9.19E-05	-	27.42	4.05E-03	1.62E-04	27.57
Fuel Truck	-	-	diesel	404	-	-	12	1,218	4.55E-03	0.03	0.02	5.26E-04	4.84E-04	4.59E-05	-	13.71	2.02E-03	8.08E-05	13.79
Electrical																			
Boom Truck	2270003010	150	diesel	201	12	21%	16	5,805	0.05	0.31	0.16	0.03	0.03	2.67E-04	1.16E-02	87.58	2.72E-03	2.23E-03	88.31
Fork Truck for Spool Offload	2270003020	75	diesel	209	12	59%	16	7,771	1.59E-03	0.17	1.20E-02	2.16E-03	2.10E-03	3.09E-04	3.83E-04	117.24	1.16E-04	2.99E-03	118.13
Man Lift Bucket	2270003010	150	diesel	201	12	21%	16	5,805	0.05	0.31	0.16	0.03	0.03	2.67E-04	1.16E-02	87.58	2.72E-03	2.23E-03	88.31
Trencher	2270002030	200	diesel	219	12	59%	16	18,656	0.03	0.38	0.12	0.02	0.02	7.91E-04	7.84E-03	281.45	2.19E-03	7.17E-03	283.64
Excavators / Backhoes	2270002036	150	diesel	208	12	59%	16	13,995	5.43E-03	0.12	0.03	7.55E-03	7.33E-03	5.62E-04	1.31E-03	211.14	4.41E-04	5.38E-03	212.75
Winch Truck	2270002051	250	diesel	211	12	59%	24	34,989	1.00E-02	0.12	0.02	4.67E-03	4.53E-03	1.39E-03	2.41E-03	527.85	4.22E-04	1.34E-02	531.87
Transportation Trucks - materials	-	-	diesel	401	-	-	64	10,647	1.35E-02	0.30	0.15	5.29E-03	4.87E-03	4.02E-04	-	119.83	1.48E-03	1.38E-04	119.91
Substation																			
Backhoe or Excavator	2270002036	150	diesel	208	12	59%	20	17,494	6.79E-03	0.14	0.04	9.44E-03	9.16E-03	7.02E-04	1.64E-03	263.92	5.52E-04	6.72E-03	265.94
Bulldozer	2270002069	200	diesel	207	12	59%	20	23,325	1.13E-02	0.13	0.04	8.96E-03	8.69E-03	9.40E-04	2.71E-03	351.89	7.09E-04	8.96E-03	354.58
Concrete Trucks	2270002042	150	diesel	204	12	43%	40	25,168	0.31	3.56	0.92	0.19	0.18	1.40E-03	0.07	379.70	0.02	9.67E-03	382.99
Drill Rig	2270002033	100	diesel	203	12	43%	20	8,390	0.10	1.14	0.29	0.07	0.06	4.63E-04	0.02	126.58	5.67E-03	3.22E-03	127.68
Man Lift Bucket	2270003010	150	diesel	201	12	21%	20	7,256	0.06	0.39	0.20	0.04	0.04	3.34E-04	1.44E-02	109.47	3.40E-03	2.79E-03	110.39
Trencher	2270002030	200	diesel	219	12	59%	20	23,320	0.04	0.48	0.15	0.03	0.03	9.89E-04	9.81E-03	351.81	2.73E-03	8.96E-03	354.55
Winch Truck	2270002051	250	diesel	211	12	59%	10	14,579	4.18E-03	0.05	9.67E-03	1.95E-03	1.89E-03	5.80E-04	1.01E-03	219.94	1.76E-04	5.60E-03	221.61
Cranes	2270002045	200	diesel	206	12	43%	20	16,815	0.02	0.18	0.04	8.45E-03	8.19E-03	6.91E-04	3.65E-03	253.68	1.05E-03	6.46E-03	255.63
Forklifts	2270003020	75	diesel	209	12	59%	20	9,714	1.98E-03	0.21	0.02	2.70E-03	2.62E-03	3.86E-04	4.79E-04	146.55	1.45E-04	3.73E-03	147.67
Skid Steer Loaders	2270002072	150	diesel	216	12	21%	10	3,617	0.09	0.48	0.29	0.06	0.05	2.01E-04	0.02	54.56	4.73E-03	1.39E-03	55.09
Dump Truck (Side or belly dump)	-	-	diesel	402	-	-	40	7,016	1.34E-02	0.24	0.11	6.02E-03	5.54E-03	2.66E-04	-	78.96	1.75E-03	1.74E-04	79.06
Wind Turbine Assembly & Erection																			
Man Lift Bucket	2270003010	150	diesel	201	12	21%	56	20,318	0.17	1.10	0.57	0.11	0.11	9.34E-04	0.04	306.53	9.53E-03	7.81E-03	309.09
Forklift	2270003020	75	diesel	209	12	59%	28	13,600	2.78E-03	0.30	0.02	3.79E-03	3.67E-03	5.41E-04	6.71E-04	205.17	2.04E-04	5.22E-03	206.73
Rough Terrain Cranes	2270002045	200	diesel	206	12	43%	70	58,853	0.05	0.64	0.15	0.03	0.03	2.42E-03	1.28E-02	887.87	3.66E-03	0.02	894.70
Track mounted cranes	2270002045	200	diesel	206	12	43%	18	15,134	1.37E-02	0.16	0.04	7.60E-03	7.37E-03	6.22E-04	3.29E-03	228.31	9.41E-04	5.81E-03	230.07
Transportation Trucks - materials &	-	-	diesel	401	-	-	336	55,898	7.10E-02	1.59	0.78	0.03	0.03	2.11E-03	-	629.10	7.76E-03	7.25E-04	629.51
Transmission Line																			
Cranes	2270002045	200	diesel	206	8	43%	8	4,484	4.05E-03	0.05	1.14E-02	2.25E-03	2.18E-03	1.84E-04	9.74E-04	67.65	2.79E-04	1.72E-03	68.17
Bucket Trucks	2270003010	150	diesel	201	8	21%	20	4,838	0.04	0.26	0.14	0.03	0.03	2.22E-04	9.63E-03	72.98	2.27E-03	1.86E-03	73.59
Wire Pullers	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Wire Tensioners	2270002081	100	diesel	213	6	59%	6	1,749	3.26E-03	0.04	1.35E-02	2.86E-03	2.78E-03	7.38E-05	7.86E-04	26.38	2.38E-04	6.72E-04	26.59
Excavators or Backhoes	2270002036	150	diesel	208	4	59%	18	5,248	2.04E-03	0.04	1.31E-02	2.83E-03	2.75E-03	2.11E-04	4.92E-04	79.18	1.65E-04	2.02E-03	79.78
Forklifts	2270003020	75	diesel	209	4	59%	12	1,943	3.97E-04	0.04	3.01E-03	5.41E-04	5.25E-04	7.73E-05	9.59E-05	29.31	2.91E-05	7.46E-04	29.53
Truck / track diggers	2270002036	150	diesel	208	6	59%	4	1,749	6.79E-04	1.45E-02	4.35E-03	9.44E-04	9.16E-04	7.02E-05	1.64E-04	26.39	5.52E-05	6.72E-04	26.59

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Phase 2b Wind (500 MW)

								Fuel Use	Emissions									
Construction Equipment	**Source Category**	**HP per unit**	**Fuel Type**	**Emiss. Factor ID**	**hrs per day**	**Load Factor**	**Total Equip. Months**	**gal**	**VOC tons**	**NO_X tons**	**CO tons**	**PM_{10} tons**	**$^{PM}2.5$ tons**	**SO_2 tons**	**HAP Tons**	**CO_2 tons**	**CH_4 tons**	**N_2O tons**	**CO_2e tons**
Dozers	2270002069	200	diesel	207	4	59%	5	1,944	9.39E-04	1.12E-02	3.64E-03	7.47E-04	7.24E-04	7.83E-05	2.26E-04	29.32	5.91E-05	7.47E-04	29.55
UTVs	2270001060	75	diesel	217	2	21%	6	201	2.68E-03	0.02	1.32E-02	1.79E-03	1.74E-03	9.71E-06	6.44E-04	3.04	1.07E-04	7.73E-05	3.06
Tractor	2270002066	150	diesel	218	6	21%	4	725	1.13E-02	0.06	0.04	7.33E-03	7.11E-03	3.68E-05	2.72E-03	10.93	7.19E-04	2.78E-04	11.03
Skid Steer Loaders	2270002072	150	diesel	216	6	21%	12	2,170	0.05	0.29	0.18	0.03	0.03	1.20E-04	1.32E-02	32.74	2.84E-03	8.34E-04	33.06
Underground boring equipment	2270002033	100	diesel	203	8	43%	12	3,356	0.04	0.45	0.12	0.03	0.03	1.85E-04	9.55E-03	50.63	2.27E-03	1.29E-03	51.07
Tractor Trailers	-	-	diesel	401	-	-	6	998	1.27E-03	0.03	1.39E-02	4.96E-04	4.56E-04	3.76E-05	-	11.23	1.39E-04	1.30E-05	11.24
Fuel Trucks / Trailers	-	-	diesel	404	-	-	6	609	2.27E-03	1.29E-02	8.23E-03	2.63E-04	2.42E-04	2.30E-05	-	6.86	1.01E-03	4.04E-05	6.89
O&M Building																			
Excavators or Backhoes	2270002036	150	diesel	208	10	59%	12	8,747	3.39E-03	0.07	0.02	4.72E-03	4.58E-03	3.51E-04	8.20E-04	131.96	2.76E-04	3.36E-03	132.97
Forklifts	2270003020	75	diesel	209	10	59%	8	3,238	6.61E-04	0.07	5.01E-03	9.01E-04	8.74E-04	1.29E-04	1.60E-04	48.85	4.85E-05	1.24E-03	49.22
Skid Steer Loaders	2270002072	150	diesel	216	10	21%	16	4,822	0.12	0.64	0.39	0.07	0.07	2.67E-04	0.03	72.75	6.31E-03	1.85E-03	73.46
Air compressor	2270006015	50	diesel	202	10	43%	4	779	2.14E-03	0.06	1.04E-02	1.32E-03	1.28E-03	3.34E-05	5.14E-04	11.75	2.47E-04	2.99E-04	11.84
Project Cleanup																			
Front end loader	2270002060	150	diesel	215	12	59%	10	8,746	7.39E-03	0.10	0.04	8.58E-03	8.33E-03	3.58E-04	1.78E-03	131.95	5.85E-04	3.36E-03	132.97
Motor grader	2270002048	100	diesel	210	12	59%	10	5,831	3.19E-03	0.06	0.02	4.94E-03	4.79E-03	2.36E-04	7.70E-04	87.97	2.64E-04	2.24E-03	88.65
Dump Truck	-	-	diesel	402	-	-	10	1,754	3.34E-03	0.06	0.03	1.50E-03	1.38E-03	6.66E-05	-	19.74	4.37E-04	4.35E-05	19.76
Transportation Trucks - material/waste	-	-	diesel	401	-	-	15	2,495	3.17E-03	0.07	0.03	1.24E-03	1.14E-03	9.41E-05	-	28.08	3.47E-04	3.24E-05	28.10
Daily Construction Traffic																			
Full size pickups, FedEx, UPS, and other delivery trucks, etc. da	-	-	diesel	405	-	-	2,100	127,250	0.61	3.87	4.19	0.14	0.13	4.84E-03	-	1432.12	0.11	7.32E-03	1437.07
Worker Commute																			
Light Commercial Truck	-	-	diesel	405	-	-	1,626	98,528	0.47	2.99	3.25	0.11	0.10	3.75E-03	-	1108.87	0.09	5.66E-03	1112.71
Passenger Car	-	-	gasoline	406	-	-	1,084	35,602	0.33	0.19	4.98	8.60E-03	7.61E-03	2.66E-03	-	400.68	0.03	6.17E-03	403.24
							Total	**1,015,521**	**4.27**	**36.73**	**22.69**	**2.04**	**1.96**	**0.04**	**0.64**	**13,857.79**	**0.41**	**0.27**	**13,947.13**

Notes:
1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e. days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2003.
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm - Construction Emissions Operations and Maintenance

Construction Equipment	Source Category	HP per unit	Fuel Type	Emiss. Factor ID	hrs per day	Load Factor	Total Equip. Months	Fuel Use gal	Emissions VOC tons	NO_x tons	CO tons	PM_{10} tons	$^{PM}2.5$ tons	SO_2 tons	HAP Tons	CO_2 tons	CH_4 tons	N_2O tons	CO_2e tons
Solar Panel Cleaning																			
Water Truck	-	-	diesel	404	-	-	24	2,436	9.09E-03	0.05	0.03	1.05E-03	9.68E-04	9.19E-05	-	27.42	4.05E-03	1.62E-04	27.57
Worker Commute																			
Light Commercial Truck	-	-	diesel	405	-	-	115	6,968	0.03	0.21	0.23	7.76E-03	7.14E-03	2.65E-04	-	78.43	6.07E-03	4.01E-04	78.70
Passenger Car	-	-	gasoline	406	-	-	77	2,529	0.02	0.01	0.35	6.11E-04	5.40E-04	1.89E-04	-	28.46	2.04E-03	4.38E-04	28.64
							Total	**11,934**	**0.07**	**0.28**	**0.62**	**9.43E-03**	**8.65E-03**	**5.46E-04**	**0.00**	**134.31**	**1.22E-02**	**1.00E-03**	**134.91**

Notes:
1. Equipment assumptions based on information provided by the project.
2. Calculations assume equipment is used 5 days/wk - i.e., days/month.
3. Calculations conservatively assume that on-road vehicles travel approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
4. Calculations conservatively assume workers average daily round trip commute is approximately miles per day, since emission factors from the MOVES2014 model for on-road vehicles are based on miles traveled.
5. Nonroad emission factors for criteria pollutants and GHG were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.
6. Nonroad emission factors for HAPs were estimated using ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7,
7. On-road vehicle emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were estimated using the MOVES2014b emission model for an assumed construction year of 2024.
8. On-road vehicle emission factors for HAP were not provided with the default MOVES input files for Benton County, but are presumed to be de minimis.

Horse Heaven Wind Farm Emission Factors
2023 Factors for Land-based Nonroad Engines and Other Equipment (Benton County, WA)

	NONROAD Source Category			NONROAD Emission Factors (g/hp-hr) /a								Climate Leaders (g/kWh) /b	Fuel Consumption	NONROAD
	SCC	Description	Engine Size (hp)	Exhaust+ Crankcase VOC	Exhaust NOx	Exhaust CO	Exhaust PM_{10}	Exhaust $^{PM}2.5$	Exhaust SO_2	Exhaust CO_2	Exhaust CH_4	Exhaust N_2O	gal/kWh/c	Default Load Factor
101	2270003010	Aerial Lifts	100 < hp <= 175	0.376424	2.443597	1.276235	0.254440	0.246807	0.001927	625.5	0.020662	0.016	0.061	21%
102	2270006015	Air Compressors	50 < hp <= 75	0.119871	2.895070	0.596171	0.078496	0.076141	0.001705	590.0	0.013032	0.015	0.058	43%
103	2270002033	Bore/Drill Rigs	100 < hp <= 175	0.427554	4.897321	1.265764	0.283498	0.274993	0.001948	529.8	0.023823	0.013	0.052	43%
104	2270002042	Cement & Mortar Mixers	100 < hp <= 175	0.436188	5.030485	1.299992	0.266438	0.258445	0.001948	529.8	0.022694	0.013	0.052	43%
105	2270002042	Cement & Mortar Mixers	175 < hp <= 300	0.385082	4.731720	1.157440	0.216126	0.209642	0.001949	529.9	0.019336	0.013	0.052	43%
106	2270002045	Cranes	175 < hp <= 300	0.041190	0.501905	0.115081	0.022971	0.022281	0.001463	530.9	0.002864	0.014	0.052	43%
107	2270002069	Crawler Tractor/Dozers	175 < hp <= 300	0.021693	0.261679	0.093740	0.019313	0.018733	0.001446	536.8	0.001491	0.014	0.053	59%
108	2270002036	Excavators	100 < hp <= 175	0.017780	0.362621	0.116397	0.026855	0.026049	0.001439	536.8	0.001495	0.014	0.053	59%
109	2270003020	Forklifts	75 < hp <= 100	0.009126	0.877277	0.080988	0.014059	0.013638	0.001574	596.1	0.000691	0.015	0.058	59%
110	2270002048	Graders	100 < hp <= 175	0.027585	0.453197	0.184198	0.045672	0.044302	0.001464	536.8	0.002341	0.014	0.053	59%
111	2270002051	Off-highway Trucks	175 < hp <= 300	0.010901	0.128754	0.027887	0.005615	0.005447	0.001417	536.8	0.000494	0.014	0.053	59%
112	2270002081	Other Construction Equipment	50 < hp <= 75	0.139477	2.984215	0.921432	0.109816	0.106521	0.001689	595.8	0.012876	0.015	0.058	59%
113	2270002081	Other Construction Equipment	100 < hp <= 175	0.079433	0.920534	0.324906	0.069897	0.067800	0.001522	536.6	0.005693	0.014	0.053	59%
114	2270002015	Rollers	75 < hp <= 100	0.047096	1.233691	0.449010	0.057364	0.055643	0.001633	596.0	0.003470	0.015	0.058	59%
115	2270002060	Rubber Tire Loaders	100 < hp <= 175	0.039552	0.494267	0.194670	0.042373	0.041102	0.001470	536.7	0.003130	0.014	0.053	59%
116	2270002072	Skid Steer Loaders	100 < hp <= 175	1.058915	5.532446	3.396834	0.638169	0.619024	0.002293	623.5	0.052753	0.016	0.061	21%
117	2270001060	Specialty Vehicle Carts	50 < hp <= 75	0.669291	4.141205	3.279180	0.450044	0.436543	0.002247	694.1	0.025095	0.018	0.068	21%
118	2270002066	Tractors/Loaders/Backhoes	100 < hp <= 175	0.746563	4.152040	2.356593	0.476468	0.462175	0.002172	624.4	0.047102	0.016	0.061	21%
119	2270002030	Trenchers	175 < hp <= 300	0.074220	0.875665	0.280526	0.056045	0.054363	0.001530	536.6	0.004972	0.014	0.053	59%

/a Emission factors for the land-based nonroad engines were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2023.
/b Emission factors for N_2O are based on Table B-8 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016. (0.26 g N2O/gal fuel)
/c Fuel consumption for each type of equipment was estimated based on CO2 emission factor (g/hp-hr) generated from the MOVES2014b model and the emission factor for the mass of CO2 generated per gallon of fuel (10.21 kg CO_2/gal fuel) as presented in Table A-1 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm

2024 Factors for Land-based Nonroad Engines and Other Equipment (Benton County, WA)

	NONROAD Source Category			Exhaust+ Crankcase VOC	NONROAD Emission Factors (g/hp-hr) /a							Climate Leaders (g/kWh) /b Exhaust N_2O	Fuel Consumption gal/kWh /c	NONROAD Default Load Factor
	SCC	Description	Engine Size (hp)		Exhaust NO_x	Exhaust CO	Exhaust PM_{10}	Exhaust $^{PM}2.5$	Exhaust SO_2	Exhaust CO_2	Exhaust CH_4			
201	2270003010	Aerial Lifts	100 < hp <= 175	0.343116	2.244312	1.168366	0.232684	0.225704	0.001907	625.6	0.019457	0.016	0.061	21%
202	2270006015	Air Compressors	50 < hp <= 75	0.107269	2.833988	0.524802	0.066519	0.064523	0.001676	590.1	0.012384	0.015	0.058	43%
203	2270002033	Bore/Drill Rigs	100 < hp <= 175	0.415637	4.758356	1.220811	0.276390	0.268098	0.001938	529.9	0.023742	0.013	0.052	43%
204	2270002042	Cement & Mortar Mixers	100 < hp <= 175	0.431877	4.960604	1.278622	0.262782	0.254898	0.001948	529.8	0.023260	0.013	0.052	43%
205	2270002042	Cement & Mortar Mixers	175 < hp <= 300	0.380258	4.656690	1.136865	0.211408	0.205065	0.001949	530.0	0.019791	0.013	0.052	43%
206	2270002045	Cranes	175 < hp <= 300	0.031792	0.383332	0.089851	0.017676	0.017146	0.001446	531.0	0.002188	0.014	0.052	43%
207	2270002069	Crawler Tractor/Dozers	175 < hp <= 300	0.017180	0.205727	0.066568	0.013666	0.013256	0.001434	536.8	0.001081	0.014	0.053	59%
208	2270002036	Excavators	100 < hp <= 175	0.013805	0.294341	0.088521	0.019202	0.018626	0.001428	536.8	0.001122	0.014	0.053	59%
209	2270003020	Forklifts	75 < hp <= 100	0.008068	0.863434	0.061159	0.011000	0.010670	0.001571	596.1	0.000591	0.015	0.058	59%
210	2270002048	Graders	100 < hp <= 175	0.019442	0.340177	0.127815	0.030156	0.029251	0.001443	536.8	0.001608	0.014	0.053	59%
211	2270002051	Off-highway Trucks	175 < hp <= 300	0.010204	0.120191	0.023612	0.004752	0.004610	0.001415	536.8	0.000429	0.014	0.053	59%
212	2270002081	Other Construction Equipment	50 < hp <= 75	0.122516	2.900716	0.785789	0.091306	0.088567	0.001667	595.8	0.012211	0.015	0.058	59%
213	2270002081	Other Construction Equipment	100 < hp <= 175	0.066363	0.777606	0.274295	0.058201	0.056455	0.001502	536.6	0.004835	0.014	0.053	59%
214	2270002015	Rollers	75 < hp <= 100	0.034643	1.131882	0.347647	0.045550	0.044183	0.001616	596.1	0.002685	0.015	0.058	59%
215	2270002060	Rubber Tire Loaders	100 < hp <= 175	0.030069	0.397966	0.158162	0.034918	0.033870	0.001456	536.7	0.002379	0.014	0.053	59%
216	2270002072	Skid Steer Loaders	100 < hp <= 175	1.044565	5.461095	3.340533	0.631123	0.612190	0.002293	623.6	0.054061	0.016	0.061	21%
217	2270001060	Specialty Vehicle Carts	50 < hp <= 75	0.612170	3.999074	3.017768	0.410255	0.397947	0.002220	694.2	0.024358	0.018	0.068	21%
218	2270002066	Tractors/Loaders/Backhoes	100 < hp <= 175	0.645219	3.609054	2.049890	0.418799	0.406235	0.002105	624.7	0.041111	0.016	0.061	21%
219	2270002030	Trenchers	175 < hp <= 300	0.062155	0.730293	0.232913	0.046190	0.044804	0.001509	536.7	0.004169	0.014	0.053	59%

/a Emission factors for the land-based nonroad engines were estimated using EPA's MOVES2014b emission model for an assumed construction year of 2024.

/b Emission factors for N_2O are based on Table B-8 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016. (0.26 g N2O/gal fuel)

/c Fuel consumption for each type of equipment was estimated based on CO2 emission factor (g/hp-hr) generated from the MOVES2014b model and the emission factor for the mass of CO2 generated per gallon of fuel (10.21 kg CO_2/gal fuel) as presented in Table A-1 of the EPA report, "Direct Emissions from Mobile Combustion Sources, U.S. EPA Center for Corporate Leadership – Greenhouse Gas Inventory Guidance," EPA430-K-16-004, January 2016.

Horse Heaven Wind Farm Emission Factors

2023 Factor for On-road Vehicles (Benton County, WA)

301	Diesel Combination Long-haul	0.19708	4.36280	2.06888	0.08199	0.07543	0.00554	1653.0	0.02078	0.00187	1654.0	6.18
302	Truck	0.32863	5.72492	2.40662	0.15755	0.14494	0.00584	1729.2	0.03852	0.00376	1731.2	5.90
303	Diesel Refuse Truck	0.12184	1.62455	1.06090	0.03698	0.03402	0.00310	926.1	0.02096	0.00313	927.6	11.02
304	Diesel Single Unit Long-haul Truck	0.34450	1.98908	1.22486	0.04459	0.04102	0.00337	1005.3	0.14599	0.00583	1010.7	10.16
305	Diesel Single Unit Short-haul Truck	0.28924	1.80128	1.98747	0.06054	0.05570	0.00206	607.4	0.04553	0.00301	608.6	16.81
306	Diesel Light Commercial Truck	0.27542	0.17850	4.10694	0.00691	0.00611	0.00217	327.2	0.02458	0.00515	329.1	31.20

/a Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2023 using the default input files for calendar year 2023 from the State of Washington Department of Ecology.

2024 Factor for On-road Vehicles (Benton County, WA)

401	Diesel Combination Long-haul	0.18245	4.08130	2.00034	0.07144	0.06572	0.00542	1617.7	0.01996	0.00187	1618.7	6.31
402	Truck	0.28885	5.26539	2.30820	0.13000	0.11960	0.00575	1705.6	0.03780	0.00376	1707.6	5.99
403	Diesel Refuse Truck	0.11464	1.55932	1.04570	0.03728	0.03430	0.00305	909.8	0.02010	0.00313	911.2	11.22
404	Diesel Single Unit Long-haul Truck	0.32730	1.85878	1.18535	0.03787	0.03484	0.00331	987.2	0.14565	0.00582	992.5	10.34
405	Diesel Single Unit Short-haul Truck	0.25216	1.59025	1.72447	0.05833	0.05367	0.00199	589.2	0.04557	0.00301	590.4	17.33
406	Diesel Light Commercial Truck	0.26095	0.14939	3.96998	0.00685	0.00606	0.00212	319.4	0.02291	0.00492	321.2	31.97

/a Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2024 using the default input files for calendar year 2024 from the State of Washington Department of Ecology.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

Horse Heaven Wind Farm MOVES Emission Factors

Benton												
Input Year	**Fuel**	**Vehicle Type**	**Emission**									
			VOC	**NOx**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**
2023	Diesel	Combination	0.19708	4.36280	2.06888	0.08199	0.07543	0.00554	1653.0	0.02078	0.00187	1654.0
		Combination	0.20423	4.06897	1.91375	0.07046	0.06483	0.00552	1650.4	0.03287	0.00291	1652.1
		Single Unit Long-haul	0.12184	1.62455	1.06090	0.03698	0.03402	0.00310	926.1	0.02096	0.00313	927.6
		Single Unit Short-haul	0.34450	1.98908	1.22486	0.04459	0.04102	0.00337	1005.3	0.14599	0.00583	1010.7
		Refuse Truck	0.32863	5.72492	2.40662	0.15755	0.14494	0.00584	1729.2	0.03852	0.00376	1731.2
		Light Commercial	0.28924	1.80128	1.98747	0.06054	0.05570	0.00206	607.4	0.04553	0.00301	608.6
		Passenger Car	0.19987	0.10901	4.07464	0.00257	0.00237	0.00114	340.9	0.00394	0.00068	341.2
	Gasoline	Combination	9.23402	7.44913	135.8309	0.07234	0.06400	0.01038	1563.0	0.33299	0.03792	1582.5
		Single Unit Long-haul	0.76947	0.38745	7.97404	0.01577	0.01395	0.00674	1014.4	0.02776	0.00928	1017.8
		Single Unit Short-haul	1.12743	0.66741	11.18899	0.03934	0.03480	0.00717	1079.0	0.06638	0.04681	1093.0
		Refuse Truck	3.28673	4.48433	39.12965	0.18280	0.16171	0.00784	1180.6	0.17743	0.07946	1208.7
		Light Commercial	0.28364	0.31128	5.17191	0.01102	0.00975	0.00298	448.9	0.03101	0.00922	452.2
		Passenger Car	0.27542	0.17850	4.10694	0.00691	0.00611	0.00217	327.2	0.02458	0.00515	329.1

Note: Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2023 using the de input files for Benton County from the State of Washington Department of Ecology.

Benton County, WA												
Input Year	**Fuel**	**Vehicle Type**	**Emission**									
			VOC	**NOx**	**CO**	**PM10**	**PM2.5**	**SO2**	**CO2**	**CH4**	**N2O**	**CO2e**
2024	Diesel	Combination	0.18245	4.08130	2.00034	0.07144	0.06572	0.00542	1617.7	0.01996	0.00187	1618.7
		Combination	0.19133	3.85586	1.85778	0.06245	0.05746	0.00541	1616.8	0.03167	0.00291	1618.4
		Single Unit Long-haul	0.11464	1.55932	1.04570	0.03728	0.03430	0.00305	909.8	0.02010	0.00313	911.2
		Single Unit Short-haul	0.32730	1.85878	1.18535	0.03787	0.03484	0.00331	987.2	0.14565	0.00582	992.5
		Refuse Truck	0.28885	5.26539	2.30820	0.13000	0.11960	0.00575	1705.6	0.03780	0.00376	1707.6
		Light Commercial	0.25216	1.59025	1.72447	0.05833	0.05367	0.00199	589.2	0.04557	0.00301	590.4
		Passenger Car	0.19368	0.09464	3.90412	0.00255	0.00235	0.00110	329.4	0.00323	0.00068	329.6
	Gasoline	Combination	7.57169	6.25666	112.9196	0.06689	0.05917	0.01057	1590.7	0.28324	0.03486	1608.1
		Single Unit Long-haul	0.70314	0.32138	7.51225	0.01459	0.01291	0.00669	1007.1	0.02535	0.00864	1010.3
		Single Unit Short-haul	1.08079	0.60565	10.67867	0.03860	0.03415	0.00712	1071.7	0.06378	0.04355	1084.8
		Refuse Truck	3.54956	4.40078	38.29389	0.18183	0.16085	0.00789	1187.7	0.17365	0.07850	1215.3
		Light Commercial	0.27141	0.27620	4.88040	0.01095	0.00968	0.00293	440.5	0.02907	0.00876	443.6
		Passenger Car	0.26095	0.14939	3.96998	0.00685	0.00606	0.00212	319.4	0.02291	0.00492	321.2

Note: Emission factors (lb/VMT) for VOC, NOx, CO, PM10, SO2, and CO2e, were derived using the MOVES2014 model and inputs for calendar year 2024 using the de input files for Benton County from the State of Washington Department of Ecology.

Adapted from Tables 2.15-2 through 2.15-4 of EFSEC ASC

HORSE HEAVEN WIND FARMEPA NEI HAP Emission Factors for Nonroad Diesels

HAP emission factors for nonroad diesels (below) were obtained from ERG, "Documentation for Aircraft, Commercial Marine Vessel, Locomotive, and Other Nonroad Components of the National Emissions Inventory," Volume I - Methodology, October 7, 2003 (available from http://www.epa.gov/ttn/chief/net/1999inventory.html#final3haps), Appendix D, Tables D-1 through D-3. This is the reference cited by EPA's National Inventory Model (NMIM), i.e., US EPA, "EPA's National Inventory Model (NMIM), A Consolidated Emissions Modeling System for MOBILE6 and NONROAD", EPA420-R-05-024, December 2005 (available from http://www.epa.gov/otaq/models/nmim/420r05024.pdf), pp. 19-21.

Pollutant	Fraction of	Emissions Factor %
1,3-butadiene	VOC - Exhaust	0.0018616
formaldehyde	VOC	0.11815
benzene	VOC	0.020344
acetaldehyde	VOC	0.05308
ethylbenzene	VOC - Exhaust	0.0031001
styrene	VOC - Exhaust	0.00059448
acrolein	VOC	0.00303
toluene	VOC	0.014967
hexane	VOC	0.0015913
propionaldehyde	VOC	0.011815
2,2,4-trimethylpentane	VOC	0.000719235
2,3,7,8-TCDD TEQ **	tons TEQ/gal	1.90705E-14
xylenes	VOC	0.010582
Total HAP (ratioed to VOC)		**0.239834715**
PAH		
benz[a]anthracene	PM10	0.0000071
benzo[a]pyrene	PM10	0.00000035
benzo[b]fluoranthene	PM10	0.00000049
benzo[k]fluoranthene	PM10	0.00000035
chrysene	PM10	0.0000019
dibenzo[a,h]anthracene	PM10	2.9E-09
indeno[1,2,3-c,d]pyrene	PM10	0.000000079
acenaphthene	PM10	0.0001
acenaphthylene	PM10	0.000084
anthracene	PM10	0.00000043
benzo[g,h,i]perylene	PM10	0.00000019
fluoranthene	PM10	0.000017
fluorene	PM10	0.0001
naphthalene	PM10	0.00046
phenanthrene	PM10	0.00026
pyrene	PM10	0.0000029
Total HAP (ratioed to PM10)		**0.001034792**
chromium	ug/bhp-hr	0.03
manganese	ug/bhp-hr	1.37
nickel	ug/bhp-hr	2.035
Total HAP (Metals ug/bhp-hr)		**3.435**

** Note: the emission rate for 2,3,7,8-TCDD TEQ is significantly lower than any other HAP and therefore, was not factored into the total HAP emission factor.

Horse Heaven Fugitive Dust Emissions Summary
Construction Scenario

Emission Totals by Phase		PM10	PM2.5
		tons	tons
Phase 1			
Exposed surface windblown dust		20.46	10.23
Access road traffic fugitive dust		1,140.97	114.10
Fugitive PM Emissions from Bulldozing activities		1.79	0.88
Fugitive PM Emissions from Grading Activities		0.16	0.01
	Total	1,163.38	125.22
Phase 2a			
Exposed surface windblown dust		16.15	8.08
Access road traffic fugitive dust		939.44	93.94
Fugitive PM Emissions from Bulldozing activities		2.06	1.01
Fugitive PM Emissions from Grading Activities		0.14	0.01
	Total	957.79	103.05
Phase 2b			
Exposed surface windblown dust		30.33	15.17
Access road traffic fugitive dust		931.87	93.19
Fugitive PM Emissions from Bulldozing activities		1.70	0.84
Fugitive PM Emissions from Grading Activities		0.07	0.01
	Total	963.97	109.19

Material Throughput and Vehicle Traffic Count on Unpaved Roads

Construction Phase 1, 2a and 2b

Horse Heaven Wind Farm

Parameters	Phase 1		Phase 2A		Phase 2B	
	Construction Traffic	Workforce	Construction Traffic	Workforce	Construction Traffic	Workforce
Operating Time						
Days per month	24	24	24	24	24	24
Number of Months	11	11	11	11	10	10
Total Operating Days (days) [a]	264	264	264	264	240	240
Daily Operating Hours (hrs/day)	12	12	2	2	2	10
Vehicle and Travel Data						
Vehicle Model [b]	Trucks	Pick up truck	Trucks	Pick up truck	Trucks	Pick up truck
Empty Vehicle Weight (tons) [c]	25.5	2.3	25.5	2.3	25.5	2.3
Vehicle Capacity (tons)	19.0	0.8	19.0	0.8	19.0	0.8
Loaded Vehicle Weight (tons)	44.5	3.0	44.5	3.0	44.5	3.0
W = Average Vehicle Weight (tons)	35.0	2.7	35.0	2.7	35.0	2.7
Number of Vehicles (duration)	52,584	63,360	42,212	56,496	39,618	65,040
Number of Vehicles (daily)	200	240	160	214	165	271
D = Distance traveled on unpaved roads (2-way miles) [d]	50.0	40.0	50.0	40.0	50.0	40.0
Daily Vehicle Miles Travelled (VMT)	10000.0	9600.0	8000.0	8560.0	8250.0	10840.0
Activity Duration Vehicle Miles Travelled (VMT)	2,629,200	2,534,400	2,110,600	2,259,840	1,980,900	2,601,600

Notes:

[a] Operating days and months are based on construction schedule information obtained from the Table Summary of Construction Schedule by Phase.

[b] Typical vehicle model to transport construction material. It assumed pick up trucks for workers.

[c] Empty vehicle weights were obtained from technical specifications of each vehicle.

[d] Hauling distance is conservatively assume that on road vehicles travel 50 miles per day and workers average daily round trip commute is approximately 40 miles per day.

Fugitive Particulate Matter (PM) Emissions from Vehicle Traffic on Unpaved Roads
Construction Phase 1, 2a and 2b
Horse Heaven Wind Farm

Parameters	Phase 1				Phase 2A				Phase 2B			
	Construction Traffic		Workforce		Construction Traffic		Workforce		Construction Traffic		Workforce	
	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Vehicle and Travel Data [b]												
W = Average Vehicle Weight (tons)	35.0	35.0	2.7	2.7	35.0	35.0	2.7	2.7	35.0	35.0	2.7	2.7
D = Distance traveled on unpaved roads (2-way miles)	50.0	50.0	40.0	40.0	50.0	50.0	40.0	40.0	50.0	50.0	40.0	40.0
Daily Operation Hours (hrs/day)	12	12	12	12	2	2	2	2	2	2	10	10
Total No. of Operating Days for activity (days)	264	264	264	264	264	264	264	264	240	240	240	240
No. of truck trips per day (trucks/day)	200	200	240	240	160	160	214	214	165	165	271	271
Total No. of trucks for activity (trucks)	52,584	52,584	63,360	63,360	42,212	42,212	56,496	56,496	39,618	39,618	65,040	65,040
Daily Vehicle Miles Travelled (VMT)	10,000	10,000	9,600	9,600	8,000	8,000	8,560	8,560	8,250	8,250	10,840	10,840
Activity Duration Vehicle Miles Travelled (VMT)	2,629,200	2,629,200	2,534,400	2,534,400	2,110,600	2,110,600	2,259,840	2,259,840	1,980,900	1,980,900	2,601,600	2,601,600
Site Characteristics												
k = Particle size multiplier (lb/VMT) [e]	1.5	0.15	1.5	0.15	1.5	0.15	1.5	0.15	1.5	0.15	1.5	0.15
s = Silt content of site specific unpaved roads (%) [d]	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
P = Mean annual number of days with precipitation greater than or equal to 0.01 inch (0.25 mm) [c]	72	72	72	72	72	72	72	72	72	72	72	72
a (constant, AP-42, Table 13.2.2-2)	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
b (constant, AP-42, Table 13.2.2-2)	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Control Efficiency												
Dust Control Efficiency (%) [f]	75	75	75	75	75	75	75	75	75	75	75	75
Emission Factors [a]												
Emission Factor (lb/VMT) - Daily	3.32	0.332	1.0	0.1	3.3	0.3	1.0	0.1	3.3	0.3	1.0	0.1
Emission Factor (lb/VMT) - Annual	2.67	0.27	0.83	0.08	2.67	0.27	0.83	0.08	2.67	0.27	0.83	0.08
Emission Rates [a]												
Uncontrolled Emission Factor (UEF) Equation - Daily (lb/day)	33,222.4	3,322.2	9,984.6	998.5	26,577.9	2,657.8	8,903.0	890.3	27,408.5	2,740.8	11,274.3	1,127.4
Uncontrolled Emission Factor (UEF) Equation - Duration (tons)	3,505.9	350.6	1,058.0	105.8	2,814.4	281.4	943.4	94.3	2,641.4	264.1	1,086.0	108.6
Controlled Daily Emissions (lb/day)	8,305.6	830.6	2,496.2	249.6	6,644.5	664.4	2,225.7	222.6	6,852.1	685.2	2,818.6	281.9
Controlled Annual Emissions (TPY)	876.5	87.6	264.5	26.4	703.6	70.4	235.8	23.6	660.4	66.0	271.5	27.2
Controlled Hourly Emissions (lb/hr, daily basis)	346.1	34.6	104.0	10.4	276.9	27.7	92.7	9.3	285.5	28.6	117.4	11.7
Emission Factor (lb/hr/mi)	13.8	1.4	5.2	0.5	11.1	1.1	4.6	0.5	11.4	1.1	5.9	0.6

Notes:

[a] Emission Factor (E) calculated from AP-42 Section 13.2.2 (Unpaved Roads) Equation 1a (Industrial Sites) -

E = k * (s/12)^a * (W/3)^b * (365-P)/365

[b] See Table 1 for number of vehicles and travel data.

[c] Particle size multiplier and constants from AP-42 Table 13.2.2-2 for industrial roads

[d] Silt content based on the Table 13.2.2-1 of AP-42 for Construction Sites

[e] Precipitation data based on annual summary data for 2020 Meteorological Data - Richland Airport (Benton County)

[f] Dust control efficiency based on 75% for basic watering on unpaved roads according to the Document Emission Factors for Paved and Unpaved Roads by the Department of Environmental Quality, State of Utah, January 2015

Fugitive PM Emissions from Bulldozers

Construction Phase 1

Horse Heaven Wind Farm

Parameters	Bulldozing/Scraping Activities		
	Wind	**Solar**	**Battery**
ID	**B1**	**B2**	**B3**
Operational Data [b]			
Daily Operation Hours (hrs/day)	12	12	12
Total No. of Operating Months for activity	8	10.1	4
No. of active bulldozers/loaders/excavators/scrapers (per month)	19	19	2
Site Characteristics [c]			
M = Moisture content (%)	3.4	3.4	3.4
s = Silt content of site specific unpaved roads (%)	7.5	7.5	7.5
Control Efficiency			
Dust Control Method [d]	Watering	Watering	Watering
Dust Control Efficiency (%)	70	70	70
Calculated PM Emission Factors (EF) [a]			
Uncontrolled TSP EF (lb/hr)	13.03	13.03	13.03
Controlled TSP EF (lb/hr)	3.91	3.91	3.91
Uncontrolled PM_{15} EF (lb/hr)	3.70	3.70	3.70
Controlled PM_{15} EF (lb/hr)	1.11	1.11	1.11
Uncontrolled PM_{10} EF (lb/hr)	2.78	2.78	2.78
Controlled PM_{10} EF (lb/hr)	0.83	0.83	0.83
Uncontrolled $PM_{2.5}$ EF (lb/hr)	1.37	1.37	1.37
Controlled $PM_{2.5}$ EF (lb/hr)	0.41	0.41	0.41
Estimated Emissions Rates (ER) [e]			
PM_{10} ER lb/hr (daily basis)	7.86	7.86	0.98
PM_{10} ER tons (year)	0.79	0.95	0.047
$PM_{2.5}$ ER lb/hr (daily basis)	3.88	3.88	0.48
$PM_{2.5}$ ER tons (year)	0.391	0.470	0.023

Notes:

[a] Emission Factor equations from Table 11.9-1 of US EPA AP-42 Section 11.9 for Western Surface Coal Mines, based on bulldozing for overburden:

Uncontrolled TSP EF (UEF) Equation :	UEF (lb/hr) = $5.7 \times (s)^{1.2} / (M)^{1.3}$
Controlled TSP EF (CEF) Equation :	CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]
Uncontrolled PM_{15} EF (UEF) Equation :	UEF (lb/hr) = $1.0 \times (s)^{1.5} / (M)^{1.4}$
Controlled PM_{15} EF (CEF) Equation :	CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]
Uncontrolled PM_{10} EF (UEF) Equation :	UEF (kg/hr) = 0.75 x UEF of PM_{15}
Controlled PM_{10} EF (CEF) Equation :	CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]
Uncontrolled $PM_{2.5}$ EF (UEF) Equation :	UEF (kg/hr) = 0.105 x UEF of TSP
Controlled $PM_{2.5}$ EF (CEF) Equation :	CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

[b] The quantity of the bulldozers, operational hours and months were based on the Construction Emissions for Phase 1.

[c] Moisture content and silt sample data based on the Table 13.2.4-1 of the AP-42.

[d] Dust control efficiency based on 70% for basic watering with natural soil in place and applying water, when warranted to obtain and never exceed a 20% opacity limit, according to the Document Emission Factors by the Department of Environmental Quality, State of

[e] ER = EF x No. of active bulldozers.

Fugitive PM Emissions from Bulldozers

Construction Phase 2a

Horse Heaven Wind Farm

Parameters	Bulldozing/Scraping Activities		
	Wind	**Solar**	**Battery**
ID	**B4**	**B5**	**B6**
Operational Data [b]			
Daily Operation Hours (hrs/day)	12	12	12
Total No. of Operating Months for activity	6	10	4
No. of active bulldozers/loaders/excavators/scrapers (per month)	34	17	7
Site Characteristics [c]			
M = Moisture content (%)	3.4	3.4	3.4
s = Silt content of site specific unpaved roads (%)	7.5	7.5	7.5
Control Efficiency			
Dust Control Method [d]	Watering	Watering	Watering
Dust Control Efficiency (%)	70	70	70
Calculated PM Emission Factors (EF) [a]			
Uncontrolled TSP EF (lb/hr)	13.03	13.03	13.03
Controlled TSP EF (lb/hr)	3.91	3.91	3.91
Uncontrolled PM_{15} EF (lb/hr)	3.70	3.70	3.70
Controlled PM_{15} EF (lb/hr)	1.11	1.11	1.11
Uncontrolled PM_{10} EF (lb/hr)	2.78	2.78	2.78
Controlled PM_{10} EF (lb/hr)	0.83	0.83	0.83
Uncontrolled $PM_{2.5}$ EF (lb/hr)	1.37	1.37	1.37
Controlled $PM_{2.5}$ EF (lb/hr)	0.41	0.41	0.41
Estimated Emissions Rates (ER) [e]			
PM_{10} ER lb/hr (daily basis)	14.01	6.88	2.95
PM_{10} ER tons (year)	1.08	0.84	0.142
$PM_{2.5}$ ER lb/hr (daily basis)	6.90	3.39	1.45
$PM_{2.5}$ ER tons (year)	0.533	0.412	0.070

Notrs:

[a] Emission Factor equations from Table 11.9-1 of US EPA AP-42 Section 11.9 for Western Surface Coal Mines, based on bulldozing for overburden:

Uncontrolled TSP EF (UEF) Equation : $UEF\ (lb/hr) = 5.7 \times (s)^{1.2} / (M)^{1.3}$

Controlled TSP EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

Uncontrolled PM_{15} EF (UEF) Equation : $UEF\ (lb/hr) = 1.0 \times (s)^{1.5} / (M)^{1.4}$

Controlled PM_{15} EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

Uncontrolled PM_{10} EF (UEF) Equation : UEF (kg/hr) = 0.75 x UEF of PM_{15}

Controlled PM_{10} EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

Uncontrolled $PM_{2.5}$ EF (UEF) Equation : UEF (kg/hr) = 0.105 x UEF of TSP

Controlled $PM_{2.5}$ EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

[b] The quantity of the bulldozers, operational hours and months were based on the Construction Emissions for Phase 2a.

[c] Moisture content and silt sample data based on the Table 13.2.4-1 of the AP-42.

[d] Dust control efficiency based on 70% for basic watering with natural soil in place and applying water, when warranted to obtain and never exceed a 20% opacity limit, according to the Document Emission Factors by the Department of Environmental Quality, State of Utah, January 2015

[e] ER = EF x No. of active bulldozers.

Fugitive PM Emissions from Bulldozers

Construction Phase 2b

Horse Heaven Wind Farm

Parameters	Bulldozing/Scraping Activities
	Wind
ID	**B7**
Operational Data [b]	
Daily Operation Hours (hrs/day)	12
Total No. of Operating Months for activity	10
No. of active bulldozers/ loaders/ excavators/ scrapers (per month)	34
Site Characteristics [c]	
M = Moisture content (%)	3.4
s = Silt content of site specific unpaved roads (%)	7.5
Control Efficiency	
Dust Control Method [d]	Watering
Dust Control Efficiency (%)	70
Calculated PM Emission Factors (EF) [a]	
Uncontrolled TSP EF (lb/hr)	13.03
Controlled TSP EF (lb/hr)	3.91
Uncontrolled PM_{15} EF (lb/hr)	3.70
Controlled PM_{15} EF (lb/hr)	1.11
Uncontrolled PM_{10} EF (lb/hr)	2.78
Controlled PM_{10} EF (lb/hr)	0.83
Uncontrolled $PM_{2.5}$ EF (lb/hr)	1.37
Controlled $PM_{2.5}$ EF (lb/hr)	0.41
Estimated Emissions Rates (ER) [e]	
PM_{10} ER lb/hr (daily basis)	14.01
PM_{10} ER tons (year)	1.70
$PM_{2.5}$ ER lb/hr (daily basis)	6.90
$PM_{2.5}$ ER tons (year)	0.837

Notes:

[a] Emission Factor equations from Table 11.9-1 of US EPA AP-42 Section 11.9 for Western Surface Coal Mines, based on bulldozing for overburden:

Uncontrolled TSP EF (UEF) Equation : $UEF\ (lb/hr) = 5.7 \times (s)^{1.2} / (M)^{1.3}$

Controlled TSP EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

Uncontrolled PM_{15} EF (UEF) Equation : $UEF\ (lb/hr) = 1.0 \times (s)^{1.5} / (M)^{1.4}$

Controlled PM_{15} EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

Uncontrolled PM_{10} EF (UEF) Equation : UEF (kg/hr) = 0.75 x UEF of PM_{15}

Controlled PM_{10} EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

Uncontrolled $PM_{2.5}$ EF (UEF) Equation : UEF (kg/hr) = 0.105 x UEF of TSP

Controlled $PM_{2.5}$ EF (CEF) Equation : CEF (lb/hr) = UEF (lb/hr) x [100 - Control efficiency (%)]

[b] The quantity of the bulldozers, operational hours and months were based on the Construction Emissions for Phase

[c] Moisture content and silt sample data based on the Table 13.2.4-1 of the AP-42.

[d] Dust control efficiency based on 70% for basic watering with natural soil in place and applying water, when warranted to obtain and never exceed a 20% opacity limit, according to the Document Emission Factors by the Department of Environmental Quality, State of Utah, January 2015

[e] ER = EF x No. of active bulldozers.

Fugitive Particulate Matter (PM) Emissions from Grading Activities

Construction Phase 1

Horse Heaven Wind Farm

Parameters	Grading Activities during Phase 1		
	Wind	**Solar**	**Battery**
ID	**G1**	**G2**	**G3**
Operational Data [a]			
Daily Operation Hours (hrs/day)	12	12	12
Total No. of Operating Months	8	10	4
No. of active motor graders per month	19	14	2
Vehicle Data			
Mean Vehicle Speed (S) (mph) [b]	3.3	3.3	3.3
Basis for vehicle miles traveled (VMT)			
Number of vehicles			
daily	7	7	7
annually	159	71	28
Grader Utilization per day (%)	50	50	50
Distance traveled/vehicle/day (miles per grader)	19.8	19.8	19.8
VMT (no. vehicles x mi traveled)			
daily	138.6	138.6	138.6
annually	1164.2	1399.9	554.4
Control Efficiency			
Dust Control Method [c]	Watering	Watering	Watering
Dust Control Efficiency (%)	70	70	70
Scaling Factors (unitless)			
TSP	1.0	1.0	1.0
PM_{15}	1.0	1.0	1.0
PM_{10}	0.6	0.6	0.6
$PM_{2.5}$	0.031	0.031	0.031
Calculated Emission Factors (EF) [d]			
Uncontrolled TSP EF (lb/VMT)	0.79	0.79	0.79
Uncontrolled PM_{15} EF (lb/VMT)	0.56	0.56	0.56
Uncontrolled PM_{10} EF (lb/VMT)	0.33	0.33	0.33
Uncontrolled $PM_{2.5}$ EF (lb/VMT)	0.02	0.02	0.02
Estimated Uncontrolled Emission Rate (ER) [e]			
TSP ER lb/hr (daily basis)	4.57	4.57	4.57
tons/yr	0.46	0.55	0.22
PM_{10} ER lb/hr (daily basis)	1.92	1.92	1.92
tons/yr	0.19	0.23	0.09
$PM_{2.5}$ ER lb/hr (daily basis)	0.14	0.14	0.14
tons/yr	0.01	0.02	0.01
Estimated Controlled Emission Rate (ER)			
TSP ER lb/hr (daily basis)	1.37	1.37	1.37
tons/yr	0.14	0.17	0.07
PM_{10} ER lb/hr (daily basis)	0.58	0.58	0.58
tons/yr	0.06	0.07	0.03
$PM_{2.5}$ ER lb/hr (daily basis)	0.04	0.04	0.04
tons/yr	0.00	0.01	0.00

Notes:

[a] The quantity of the graders, operational hours and months were based on the Construction Emissions for Phase 1.

[b] Mean vehicle speed for graders based on the grader operations' time estimations by http://www.ocw.upj.ac.id/

[c] Dust control efficiency based on 70% for basic watering with natural soil in place and applying water, when warranted to obtain and never exceed a 20% opacity limit, according to the Document Emission Factors by the Department of Environmental Quality, State of Utah, January 2015

[d] Emission Factor equations from Table 11.9-1 of US EPA AP-42 Section 11.9 for Western Surface Coal Mines, based on grading

Uncontrolled PM_{15} EF (UEF) Equation UEF (lb/VMT) = $0{,}051 \times S^{2,0}$ x Scaling Factor

Uncontrolled TSP EF (UEF) Equation UEF (lb/VMT) = $0.040(S)^{2.5}$ x Scaling Factor

PM10 EF = PM15 EF x Scaling factor for PM-10

PM2.5 EF = TSP EF x Scaling factor for PM-2.5

[e] ER = EF x VMT

Fugitive Particulate Matter (PM) Emissions from Grading Activities

Construction Phase 2a

Horse Heaven Wind Farm

Parameters	Grading Activities during Phase 2a		
	Wind	**Solar**	**Battery**
ID	**G4**	**G5**	**G6**
Operational Data [a]			
Daily Operation Hours (hrs/day)	12	12	12
Total No. of Operating Months	6	10	4
No. of active motor graders per month	24	12	14
Vehicle Data			
Mean Vehicle Speed (S) (mph) [b]	3.3	3.3	3.3
Basis for vehicle miles traveled (VMT)			
Number of vehicles			
daily	7	7	7
annually	152	71	28
Grader Utilization per day (%)	50	50	50
Distance traveled/vehicle/day (miles per grader)	19.8	19.8	19.8
VMT (no. vehicles x mi traveled)			
daily	138.6	138.6	138.6
annually	891.7	1404.5	554.4
Control Efficiency			
Dust Control Method [c]	Watering	Watering	Watering
Dust Control Efficiency (%)	70	70	70
Scaling Factors (unitless)			
TSP	1.0	1.0	1.0
PM_{15}	1.0	1.0	1.0
PM_{10}	0.6	0.6	0.6
$PM_{2.5}$	0.031	0.031	0.031
Calculated Emission Factors (EF) [d]			
Uncontrolled TSP EF (lb/VMT)	0.79	0.79	0.79
Uncontrolled PM_{15} EF (lb/VMT)	0.56	0.56	0.56
Uncontrolled PM_{10} EF (lb/VMT)	0.33	0.33	0.33
Uncontrolled $PM_{2.5}$ EF (lb/VMT)	0.02	0.02	0.02
Estimated Uncontrolled Emission Rate (ER) [e]			
TSP ER lb/hr (daily basis)	4.57	4.57	4.57
tons/yr	0.35	0.56	0.22
PM_{10} ER lb/hr (daily basis)	1.92	1.92	1.92
tons/yr	0.15	0.23	0.09
$PM_{2.5}$ ER lb/hr (daily basis)	0.14	0.14	0.14
tons/yr	0.01	0.02	0.01
Estimated Controlled Emission Rate (ER)			
TSP ER lb/hr (daily basis)	1.37	1.37	1.37
tons/yr	0.11	0.17	0.07
PM_{10} ER lb/hr (daily basis)	0.58	0.58	0.58
tons/yr	0.04	0.07	0.03
$PM_{2.5}$ ER lb/hr (daily basis)	0.04	0.04	0.04
tons/yr	0.00	0.01	0.00

Notes:

[a] The quantity of the graders, operational hours and months were based on the Construction Emissions for Phase 2a

[b] Mean vehicle speed for graders based on the grader operations' time estimations by http://www.ocw.upj.ac.id/

[c] Dust control efficiency based on 70% for basic watering with natural soil in place and applying water, when warranted to obtain and never exceed a 20% opacity limit, according to the Document Emission Factors by the Department of Environmental Quality, State of Utah, January 2015

[d] Emission Factor equations from Table 11.9-1 of US EPA AP-42 Section 11.9 for Western Surface Coal Mines, ba

Uncontrolled PM_{15} EF (UEF) Equation UEF (lb/VMT) = 0,051 x $S^{2.0}$ x Scaling Factor

Uncontrolled TSP EF (UEF) Equation UEF (lb/VMT) = 0.040$(S)^{2.5}$ x Scaling Factor

PM10 EF = PM15 EF x Scaling factor for PM-10

PM2.5 EF = TSP EF x Scaling factor for PM-2.5

[e] ER = EF x VMT

Fugitive Particulate Matter (PM) Emissions from Grading Activities

Construction Phase 2b

Horse Heaven Wind Farm

Parameters	Grading Activities during Phase 2b
	Wind
ID	**G7**
Operational Data [a]	
Daily Operation Hours (hrs/day)	12
Total No. of Operating Months	10
No. of active motor graders per month	25
Vehicle Data	
Mean Vehicle Speed (S) (mph) [b]	3.3
Basis for vehicle miles traveled (VMT)	
Number of vehicles	
daily	7
annually	250
Grader Utilization per day (%)	50
Distance traveled/vehicle/day (miles per grader)	19.8
VMT (no. vehicles x mi traveled)	
daily	138.6
annually	1399.9
Control Efficiency	
Dust Control Method [c]	Watering
Dust Control Efficiency (%)	70
Scaling Factors (unitless)	
TSP	1.0
PM_{15}	1.0
PM_{10}	0.6
$PM_{2.5}$	0.031
Calculated Emission Factors (EF) [d]	
Uncontrolled TSP EF (lb/VMT)	0.79
Uncontrolled PM_{15} EF (lb/VMT)	0.56
Uncontrolled PM_{10} EF (lb/VMT)	0.33
Uncontrolled $PM_{2.5}$ EF (lb/VMT)	0.02
Estimated Uncontrolled Emission Rate (ER) [e]	
TSP ER lb/hr (daily basis)	4.57
tons/yr	0.55
PM_{10} ER lb/hr (daily basis)	1.92
tons/yr	0.23
$PM_{2.5}$ ER lb/hr (daily basis)	0.14
tons/yr	0.02
Estimated Controlled Emission Rate (ER)	
TSP ER lb/hr (daily basis)	1.37
tons/yr	0.17
PM_{10} ER lb/hr (daily basis)	0.58
tons/yr	0.07
$PM_{2.5}$ ER lb/hr (daily basis)	0.04
tons/yr	0.01

Notes:

[a] The quantity of the graders, operational hours and months were based on the Construction Emissions for Phase 2b.

[b] Mean vehicle speed for graders based on the grader operations' time estimations by http://www.ocw.upj.ac.id/

[c] Dust control efficiency based on 70% for basic watering with natural soil in place and applying water, when warranted to obtain and never exceed a 20% opacity limit, according to the Document Emission Factors by the Department of Environmental Quality, State of Utah, January 2015

[d] Emission Factor equations from Table 11.9-1 of US EPA AP-42 Section 11.9 for Western Surface Coal Mines, based on grading

Uncontrolled PM_{15} EF (UEF) Equation — UEF (lb/VMT) = 0,051 x $S^{2,0}$ x Scaling Factor

Uncontrolled TSP EF (UEF) Equation — UEF (lb/VMT) = 0.040$(S)^{2.5}$ x Scaling Factor

PM10 EF = PM15 EF x Scaling factor for PM-10

PM2.5 EF = TSP EF x Scaling factor for PM-2.5

[e] ER = EF x VMT

Fugitive PM Emissions from Wind Erosion of Exposed Surface Areas
Construction Phase 1, 2a and 2b
Horse Heaven Wind Farm

Parameters	Exposed surface windblown dust		
	Construcion Phase 1	Construcion Phase 2a	Construcion Phase 1
ID	**WE1**	**WE1**	**WE1**
Operational Data			
Hours of Exposure (hrs/day)	24	24	24
Unvegetated Surface Area (acres) [b]	358.9	283.4	532.1
Site Characteristics [c]			
Daily hours of precipitation ≥ 0.25 mm (p)	0	0	0
Annual days of precipitation ≥ 0.25 mm (p)	72	72	72
Control Efficiency			
Dust Control Method [d]	Watering as needed	Watering as needed	Watering as needed
Dust Control Efficiency (%) [d]	70	70	70
Particle Size Multipliers (k) [e]			
For TSP	1.0	1.0	1.0
For PM_{10}	0.50	0.50	0.50
For $PM_{2.5}$	0.25	0.25	0.25
Calculated PM Emission Factors (EF) [a]			
Uncontrolled TSP EF (ton/acre/yr)	0.38	0.38	0.38
Uncontrolled PM_{10} EF (ton/acre/yr)	0.19	0.19	0.19
Uncontrolled $PM_{2.5}$ EF (ton/acre/yr)	0.095	0.095	0.095
Controlled TSP EF (ton/acre/yr)	0.11	0.11	0.11
Controlled PM_{10} EF (ton/acre/yr)	0.06	0.06	0.06
Controlled $PM_{2.5}$ EF (ton/acre/yr)	0.029	0.029	0.029
Estimated Emissions Rates [a]			
TSP ER lb/hr (daily basis)	9.34	7.38	13.85
TSP ER tons (year)	40.91	32.31	60.66
PM_{10} ER lb/hr (daily basis)	4.67	3.69	6.92
PM_{10} ER tons (year)	20.46	16.15	30.33
$PM_{2.5}$ ER lb/hr (daily basis)	2.34	1.84	3.46
$PM_{2.5}$ ER tons (year)	10.23	8.08	15.17

Notes:

[a] Emission factor equation from Table 11.9-4 (wind erosion of exposed areas) of US EPA AP-42 Section 11.9 for Western Surface Coal Mines:
Uncontrolled TSP EF (UEF) Equation : UEF (ton/acre/yr) = k x 0.38
Controlled TSP EF (CEF) Equation : CEF (ton/acre/yr) = UEF (ton/acre/yr) x [100 - Control efficiency (%)]

[b] Area of unvegetated surface (temporary and permanent disturbance) based on the Table 2.1-1 Project Related Impacts.

[c] Based on hourly surface 2020 meteorological data from the Richland Airport (Benton County)

[d] Dust control efficiency based on 70% for basic watering with natural soil in place and applying water, when warranted to obtain and never exceed a 20% opacity limit, according to the Document Emission Factors by the Department of Environmental Quality, State of Utah, January 2015

[e] Particle size based on AP-42 Section 13.2.5 recommendation.

APPENDIX 4.3-2

Tetra Tech 2023 Air Quality Dispersion Modeling Evaluation

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Air Quality Dispersion Modeling Evaluation

Horse Heaven Wind Farm
Concrete Batch Plant and Stationary Engines
Benton County, Washington

June 2023

Prepared for:

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TETRA TECH

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APPENDICES

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
µg/m^3	micrograms per cubic meter
AP-42	Compilation of Air Pollutant Emission Factors
AQCR	Air Quality Control Region
BCAA	Benton Clean Air Agency
bhp	brake horsepower
BMP	best management practice
BPIP	Building Profile Input Program
CBP	concrete batch plant
CFR	Code of Federal Regulations
CO	carbon monoxide
Ecology	Washington State Department of Ecology
EFSEC	Energy Facility Site Evaluation Council
GEP	Good Engineering Practice
HAP	hazardous air pollutant
hp	horsepower
km	kilometer
lb/hr	pounds per hour
N_2	nitrogen gas
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO	nitrogen oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O_3	ozone
PAH	polycyclic aromatic hydrocarbons

Acronyms/Abbreviations	Definition
Pb	lead
PM	particulate matter
PM_{10}	particulate matter with aerodynamic diameter equal to or less than 10 micrometers
$PM_{2.5}$	particulate matter with aerodynamic diameter equal to or less than 2.5 micrometers
PTE	potential-to-emit
scf	standard cubic feet
SIA	Significant Impact Area
SIL	Significant Impact Level
SO_2	sulfur dioxide
SO_X	Sulfur oxides
tpd	tons per day
tph	tons per hour
tpy	tons per year
TSP	total suspended particulate matter
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	volatile organic compounds
yd^3	cubic yards
WAAQS	Washington Ambient Air Quality Standard
WAC	Washington Administrative Code

1.0 INTRODUCTION

1.1 PURPOSE

Horse Heaven Wind Farm, LLC (Horse Heaven) is proposing to construct and operate the Horse Heaven Wind Farm (Project) in unincorporated Benton County, Washington, within the Horse Heaven Hills area. The Project would consist of a renewable energy generation facility and is located approximately four (4) miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area, along the Columbia River.

In February 2021, Horse Heaven submitted an Application for Site Certification (ASC) to the Energy Facility Site Evaluation Council (EFSEC). The ASC was updated to incorporate information requested by EFSEC and submitted in December 2022. An initial air quality assessment was one of the resources areas evaluated in the ASC. To refer to the initial air quality assessment, the ASC and its update are available on EFSEC's project website at: https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-application.

During construction, and as previously evaluated, air emissions would result from use of fuel-burning equipment to support construction, as well as fugitive dust associated with exposed surface windblown dust, access road traffic, bulldozing, and grading activities. At the time the ASC was submitted, the potential for batch plant use and backup diesel generators was identified, but specific locations for this equipment had not yet been determined and as a result, these emissions were not included in the initial air quality analysis. Horse Heaven has since identified temporary locations for a portable concrete batch plant (CBP) and backup diesel generators. The purpose of this report is to provide supplemental environmental analysis related to the potential ambient air quality impacts of the CBP and generator engines. As such, this report provides:

- A description of the proposed configuration of the additional equipment (Section 2);
- An inventory of maximum potential emissions resulting from the additional equipment (Section 3);
- An ambient air quality dispersion modeling analysis to show emissions associated with the additional equipment will comply with ambient air quality standards (Section 5); and
- Detailed emissions calculations (Appendix A) and modeling inputs (Appendix B).

1.2 SUMMARY

The Project will comply with ambient air quality standards, and will do so by accepting permit limits on operating conditions. Bin vent filters will be installed on cement and cement supplement silos to minimize emissions during silo loading operations.

The Project will also implement Best Management Practices for the mitigation of fugitive dust. Fugitive emissions and dust would be controlled through standard construction control practices and methods, such as the following:

- Construction and operations vehicles and equipment would comply with applicable state and federal emissions standards.
- Vehicles and equipment used during construction would be properly maintained to minimize exhaust emissions.
- Operational measures such as limiting engine idling time and shutting down equipment when not in use would be implemented.
- Watering or other fugitive dust-abatement measures would be used as needed to control fugitive dust generated during construction.
- Construction materials that could be a source of fugitive dust would be covered when stored.
- Traffic speeds on unpaved roads would be limited to 25 miles per hour to minimize generation of fugitive dust.
- Truck beds would be covered when transporting dirt or soil.

- Carpooling among construction workers would be encouraged to minimize construction-related traffic and associated emissions.
- Erosion-control measures would be implemented to limit deposition of silt to roadways, to minimize a vector for fugitive dust.
- Replanting or graveling disturbed areas will be conducted during and after construction to reduce wind-blown dust.

2.0 PROJECT DESCRIPTION

Horse Heaven is proposing to construct its Project in the Horse Heaven Hills area of Benton County located approximately four (4) miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area, near the Columbia River. The construction of the project will occur over a period of approximately two years, with construction of the eastern portion of the project occurring in the first year (i.e., Phase I) and construction of the western portion of the project occurring in the second year (i.e., Phase II). A portable CBP and backup generators will support the construction of the project. The portable CBP will only be located at the site for a temporary period of 4 months for each phase (i.e., 4 months during Phase I construction and another 4 months during Phase II construction).

This section provides a description of the Project location (Section 2.1), and the proposed equipment to be installed for the Project (Section 2.2).

2.1 PROJECT LOCATION

The Project site is located in the Horse Heaven Hills approximately four (4) miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area, near the Columbia River. The Project is planned to be constructed in two phases across three different locations within the Horse Heaven Hills:

Phase 1: HH-East
The first phase of the Project will include the east substation and the east laydown area located adjacent to each other. Both areas are located near coordinates 46.060611°, -119.206184° and will include four (4) total engines, with three (3) rated at 2,680 brake horsepower (bhp) each and one (1) rated at 670 bhp. The portable CBP will be located at the east laydown area for a duration of approximately four (4) months.

Phase 2: HH-West
The second phase of the Project will include the west substation and west laydown area. The west substation is located near coordinates 46.188129°, -119.551248° and will include three (3) diesel engines rated at 2,680 bhp each. The west laydown area is located near coordinates 46.116957°, -119.356656° and will include the portable CBP for a duration of approximately four (4) months and one (1) diesel engine rated at 670 bhp.

The substations and laydown yard locations are shown in Figure 2-1. The topography surrounding the Project consists of gently sloping terrain as indicated in the figure.

The Project is located in the USEPA's South Central Washington Intrastate Air Quality Control Region (AQCR). The AQCR is designated as attainment or unclassifiable for all criteria pollutants.

2.2 SUMMARY OF PROPOSED PROJECT

The Project includes backup diesel generators and portable concrete batching equipment to be temporarily installed on site. Aggregate and sand brought to the site by truck will be stored in the laydown areas immediately adjacent to the CBP. A front-end loader will be used to distribute materials between storage areas and the CBP operations.

2.2.1 Backup Diesel Generators

Two types of diesel generators are proposed for this Project. The substations will utilize engines for which the Cummins Model QSK60-G6 engine rated at 2,680 bhp each is representative. The engines will meet the Tier II emission standards as specified under 40 Code of Federal Regulation (CFR) 89.112(a). Each engine will operate no more than 500 hours per year during the entire duration of the Project. The laydown areas will utilize engines for which the Cummins Model QSK60-GA engines rated at 670 bhp each is representative. Similarly, these engines will meet the Tier II emission standards as specified under 40 CFR 89.112(a) and will not operate for more than 500 hours per year during the entire duration of the Project.

Horse Heaven Wind Project

SCOUT CLEAN ENERGY

Figure 2-1
Site Location
BENTON COUNTY, WA

West Substation (Phase 2)

West Laydown (Phase 2)

East Substation and Laydown (Phase 1)

- Project Lease Boundary
- Laydown Area
- Substation

TETRA TECH

Reference Map

1:140,000 WGS 1984 UTM Zone 11N

0 1 2 4 6 8 Miles

NOT FOR CONSTRUCTION

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2.2.2 Concrete Batch Plant (Ready-Mix Plant)

The basic manufacturing process of a CBP involves mixing sand, aggregate, cement, cement supplements, and water to produce concrete. Generally, sand and aggregate are loaded into hoppers which feed enclosed conveyor belts that transfer the materials to weigh hoppers according to the mix requested by the contractor. Cement and cement supplements are also loaded by pneumatic conveying systems into the weigh hoppers. All of these materials are then loaded into a ready-mix delivery truck along with water. The rotating drum on the delivery truck mixes the materials to achieve the desired product consistency. The loaded delivery truck leaves the premises to deliver the product. Product mixing continues to occur onboard the truck during transit to the delivery site. Figure 2-2 shows a representative schematic process flow diagram of a CBP.

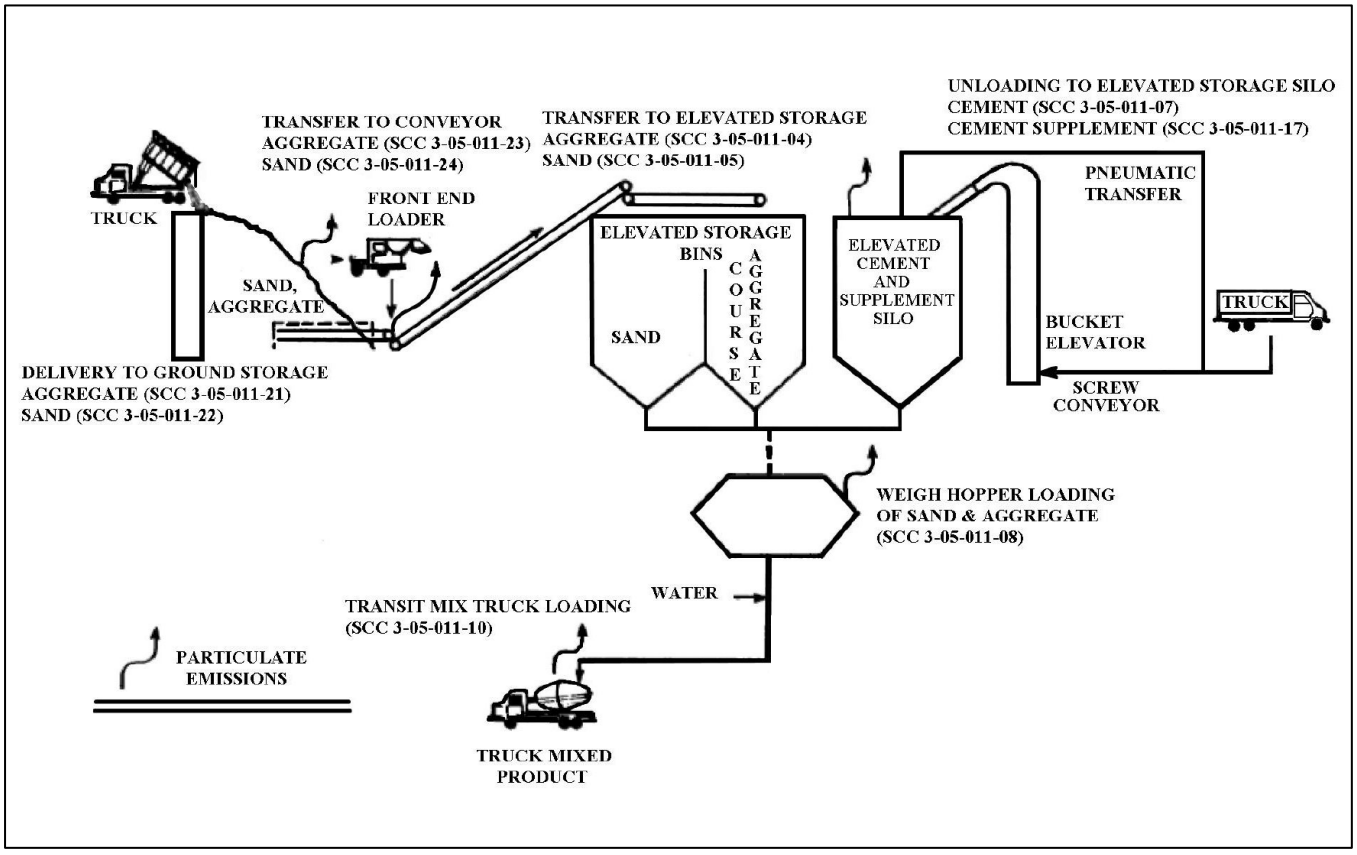

Figure 2-2. Representative Schematic Process Flow Diagram for a Concrete Batch Plant (adapted from USEPA AP-42 Compilation of Air Emission Factors, Figure 11.12-1).

The cement and cement supplement silos will be equipped with high efficiency bin vent filters. The aggregate and sand storage area will use a commercial water spray system to control dust during material handling. The Project will use washed aggregate and sand when contractor specifications allow, further reducing fugitive dust emissions during material handling. The feed hoppers will be equipped with an enclosed drop to the conveyor to minimize fugitive dust from this activity.

The Project will include sand and aggregate storage areas, equipment such as front-end loaders to transfer material between storage areas and plant areas, and haul roads upon which trucks will travel. Particulate matter in the form of fugitive dust can be generated from all these activities. Best Management Practices (BMPs) will be used to minimize the formation of fugitive dust emissions. Examples of BMPs to be used by the Project include the following:

- Construction and operations vehicles and equipment would comply with applicable state and federal emissions standards.
- Vehicles and equipment used during construction would be properly maintained to minimize exhaust emissions.
- Operational measures such as limiting engine idling time and shutting down equipment when not in use would be implemented.
- Watering or other fugitive dust-abatement measures would be used as needed to control fugitive dust generated during construction.
- Construction materials that could be a source of fugitive dust would be covered when stored.
- Traffic speeds on unpaved roads would be limited to 25 miles per hour to minimize generation of fugitive dust.
- Truck beds would be covered when transporting dirt or soil.
- Carpooling among construction workers would be encouraged to minimize construction-related traffic and associated emissions.
- Erosion-control measures would be implemented to limit deposition of silt to roadways, to minimize a vector for fugitive dust.
- Replanting or graveling disturbed areas will be conducted during and after construction to reduce wind-blown dust.

Implementation of these BMPs is expected to meet Benton Clean Air Agency (BCAA) requirements, which prohibit off-property transport of visible fugitive dust emissions.

3.0 EMISSIONS ESTIMATES

This section describes how emissions from the Project were calculated based upon activity data supplied by Horse Heaven, emission factors obtained from USEPA's AP-42 Compilation of Air Pollutant Emission Factors (AP-42), and emissions standards established for the generator engines. Detailed emissions calculations are provided in Appendix A.

From a practical perspective relevant to the Project and its emissions, the list of regulated New Source Review (NSR) pollutants includes the six criteria pollutants for which National Ambient Air Quality Standards (NAAQS) have been established and those pollutants that are subject to the New Source Performance Standards (NSPS) promulgated pursuant to Section 111 of the federal Clean Air Act (CAA).

The six criteria pollutants are: sulfur dioxide (SO_2), particulate matter (PM), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). Volatile organic compounds (VOCs) and nitrogen oxides (NO_X) are included by virtue of being established by USEPA as ozone precursors. For regulatory purposes, PM is further classified by particle size. $PM_{2.5}$ includes all particles with an aerodynamic diameter of less than 2.5 microns. PM_{10} includes all particles with an aerodynamic diameter of less than 10 microns. Total suspended particulate includes particles of all sizes.

The list of Hazardous Air Pollutants (HAPs) is defined in Section 112(b) of the CAA and in 40 CFR Part 63 Subpart C. From a practical perspective, the HAPs to be emitted from the Project are subsets of regulated NSR pollutants, particularly trace metals (PM) and trace organics (VOCs).

Both short-term emissions (durations of 24 hours or less) and long-term emissions (construction duration of less than one year) estimates are provided. Emissions of regulated NSR pollutants and HAPs were calculated. The following sections describe how emissions from each Project area were calculated.

3.1 BACKUP DIESEL GENERATORS EMISSIONS

The diesel generators will serve as backup power sources during the construction period. The HH-West Step-up Substation will have three (3) identical engines rated at approximately 2,680 bhp each. The HH-West CBP will have one (1) engine rated at approximately 670 bhp. The HH-East Substation will have three (3) identical engines rated at approximately 2,680 bhp each. The HH-East CBP will have one (1) engine rated at approximately 670 bhp. In summary, there will be a total of eight (8) nonroad engines utilized throughout the Project. The Cummins engines identified previously are considered representative of the engines to be secured for the construction and commissioning activity.

All generator emissions are based on emission factors provided in USEPA's AP-42 Compilation of Air Pollutant Emission Factors, Section 3.4. The following tables were used to calculation emissions:

- Table 3.4-1 for criteria pollutants (NO_x, CO, SO_2, PM, and VOC)
- Table 3.4-3 for hazardous air pollutants.
- Table 3.4-4 for polycyclic aromatic hydrocarbons.

Table 3-1 includes the total emissions from diesel generators for each location. Detailed supporting calculations are provided in Appendix A.

Table 3-1. Summary of Potential Emissions from Diesel Generators

Pollutant	East Substation / Laydown		West Substation		West Laydown	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
CO	47.91	11.98	44.22	11.06	3.69	0.92
NO_x	209.04	52.26	192.96	48.24	16.08	4.02
PM	6.1	1.53	5.63	1.41	0.47	0.12
PM_{10}	6.1	1.53	5.63	1.41	0.47	0.12
$PM_{2.5}$	6.1	1.53	5.63	1.41	0.47	0.12
SO_2	0.11	0.03	0.10	0.02	0.01	0.00
VOC	6.14	1.54	5.67	1.42	0.47	0.12
Pb	0.00	0.00	0.00	0.00	0.00	0.00
Total HAP	0.091	0.398	0.084	0.368	0.007	0.0306

lb/hr = pound per hour; tpy = ton per year

3.2 CBP EMISSIONS

Concrete batching emissions are calculated depending on the sources and the type of activity. Particulate matter, consisting of aggregate, sand, cement, and cement supplement particles, is the primary pollutant of concern.

Emissions of PM, PM_{10}, and $PM_{2.5}$, at the CBP are based on emission factors provided in USEPA's AP-42 Compilation of Air Pollutant Emission Factors, 11.12 (USEPA, 2006a), 11.19.2 (USEPA, 2004b), and 13.2.4 (USEPA, 2006b), 13.2.1 for paved roads (USEPA, 2011b), 13.2.2 for unpaved surfaces (USEPA, 2006b), and USEPA's report, *Control of Open Fugitive Dust Sources* (USEPA, 1988) for wind erosion of active storage piles.

For the purposes of calculating 1-hour potential emissions for dispersion modeling, the maximum hourly concrete production rate is assumed to be 330 tons/hour since that is the largest potential operating capacity for a CBP of the scale anticipated to be contracted by the Project. This value is used as the maximum hourly concrete production rate for each of the west and east locations.

The maximum daily concrete production rate is 1,423 tons/day and is based on the amount of concrete required on the most active construction day including contingency. This value is used as the maximum daily concrete production rate for each of the west and east locations for calculation of 24-hour potential emissions for dispersion modeling.

The total concrete production for each phase's entire 4-month duration of construction is expected to be 141,608 tons per year (tpy) and 198,925 tpy for the west and east locations, respectively. These values are used for calculation of long-term potential emissions for dispersion modeling.

3.2.1 Sand and Aggregate Delivery and Transfer

Sand and aggregate materials are brought in via trucks and delivered to an open storage area located on the ground. The materials are transferred by front-end loader to hoppers which load the materials onto a conveyor that in turn transfers them to an elevated storage area. The AP-42 Section 13.2.4.3 Predictive Emission Factor Equation is used to calculate emission factors instead of using emission factors in Table Section 11.12-5 because the former provides a more accurate representation specific to this batching process:

$$E = k(0.0032) \times \frac{(\frac{U}{5})^{1.3}}{(\frac{M}{2})^{1.4}}$$

Where E = PM emission factor;
k = particle size multiplier;
U = wind speed at the material drop point in miles per hour; and
M = minimum moisture percentage of cement;

The emission factors are multiplied by the maximum throughput of the sand and aggregate. The material handling emissions for sand and aggregate are controlled by the use of water sprays and covered conveyors. Table 3-2 summarizes estimated potential particulate emissions from sand and aggregate delivery and transfer. Detailed supporting calculations are provided in Appendix A.

Table 3-2. Summary of Potential Emissions from Sand and Aggregate Delivery and Transfer

Pollutant	East Laydown		West Laydown	
	Sand and Aggregate Transfer (lb/hr)	Sand and Aggregate Transfer (tpy)	Sand and Aggregate Transfer (lb/hr)	Sand and Aggregate Transfer (tpy)
PM	0.13	0.21	0.13	0.15
PM_{10}	0.06	0.10	0.06	0.07
$PM_{2.5}$	0.01	0.01	0.01	0.01
lb/hr = pound per hour; tpy = ton per year				

3.2.2 Cement Delivery and Weigh Hopper Loading

Cement and cement supplements are brought in via trucks and delivered to a bucket elevator or pneumatic conveyor belt that transfers the content to an elevated silo. They are then fed into a weigh hopper along with sand and aggregate.

The emission factors from AP-42 11.12-3 and 11.12-5 are multiplied by the maximum throughput of the cement and cement supplement. Material handling emissions of cement silo and cement supplement silo loading are controlled by a bin vent filter with a 98 percent control efficiency on the top of the silo. Table 3-3 and Table 3-4 summarize estimated potential particulate emissions from cement and supplement delivery and weigh hopper loading.

Table 3-3. Summary of Potential Emissions from Cement and Supplement Delivery

Pollutant	East Laydown		West Laydown	
	Cement Delivery (lb/hr)	Cement Delivery (tpy)	Cement Delivery (lb/hr)	Cement Delivery (tpy)
PM	0.000296	0.000498	0.000296	0.000354
PM_{10}	0.000178	0.000298	0.000178	0.000212
$PM_{2.5}$	0.0000267	0.000045	0.0000267	0.0000319
lb/hr = pound per hour; tpy = ton per year				

Table 3-4. Summary of Potential Emissions from Weigh Hopper Loading

Pollutant	East Laydown		West Laydown	
	Paved Roads (lb/hr)	Paved Roads (tpy)	Paved Roads (lb/hr)	Paved Roads (tpy)
PM	0.23	0.39	0.23	0.28
PM_{10}	0.11	0.19	0.11	0.14
$PM_{2.5}$	0.02	0.03	0.02	0.02

lb/hr = pound per hour; tpy = ton per year

3.2.3 Truck Mix Loading

The materials in the weigh hopper are then mixed with water and gravity fed into the mixer trucks. The equations from AP-42 Section 11.12 and Tables 11.12-3 and 11.12-4 were used to calculate the PM emission factors.

$$E = k(0.0032) \times \frac{(U)^a}{(M)^b} + c$$

Where E = PM emission factor;
k = particle size multiplier;
U = wind speed at the material drop point in miles per hour;
M = minimum moisture percentage of cement;
a, b = exponents; and
c = constant.

The emission factors are multiplied by the maximum throughput of the mixed materials. A control efficiency of 94 percent was applied. Table 3-5 summarizes estimated potential emissions of fugitive dust from truck mix loading. Detailed supporting calculations are provided in Appendix A.

Table 3-5. Summary of Potential Fugitive Dust Emission Rates from Truck Mix Loading

Pollutant	East Laydown		West Laydown	
	Truck Loading (lb/hr)	Truck Loading (tpy)	Truck Loading (lb/hr)	Truck Loading (tpy)
PM	0.41	0.69	0.41	0.49
PM_{10}	0.16	0.28	0.16	0.20
$PM_{2.5}$	0.02	0.04	0.02	0.03

lb/hr = pound per hour; tpy = ton per year

3.2.4 Paved Roads

Paved roads will be constructed at the CBP site for trucks delivering raw materials and hauling out concrete. For paved roads, two equations from AP-42 Section 13.2.1 were used to calculate short-term and long-term PM emission factors.

For short-term emissions calculations (24-hour duration or less) (Equation 1):

$$E = k(sL)^{0.91} \times (W)^{1.02}$$

Where E = PM emission factor;
k = particle size multiplier;
sL = road silt surface loading; and
W = average weight of the vehicles traveling the road.

For long-term emissions calculations (Equation 2):

$$E = [k(sL)^{0.91} \times (W)^{1.02}](1 - \frac{P}{4N})$$

Where E = PM emission factor;
k = particle size multiplier;
sL = road silt surface loading;
W = average weight of the vehicles traveling the road;
P = number of wet days with at least 0.01 inches of precipitation in the averaging period; and
N = number of days in the averaging period.

Table 3-6 provides the parameter values used in the paved road calculations.

Trucks delivering raw materials to the CBP and hauling concrete away from the CBP will use the haul road loop constructed within the laydown area. Details on the truck weight calculation are provided in Appendix A.

Table 3-6. Paved Road Emission Factor Parameters

Parameter	Value	Basis
k (PM)	0.011	AP-42, Section 13.2.1
k (PM_{10})	0.0022	AP-42, Section 13.2.1
k ($PM_{2.5}$)	0.00054	AP-42, Section 13.2.1
sL	12 g/m^2	AP-42, Section 13.2.1
W	20 tons	Average Vehicle Weight
P	77 days	National Climatic Data Center (NCDC), Pasco Tri-Cities Airport, 1991-2020
N	365 days	Days per year

Table 3-7 provides the number of daily trips for each of the truck purposes, as well as the trip length for each. Additional calculations are provided in Appendix A.

Table 3-7. Truck Trips

Pollutant	East Laydown		West Laydown	
	Trip Length	Daily Trips	Trip Length	Daily Trips
Sand & Aggregate Delivery	874feet	43	874 feet	43
Cement & Supplement Delivery	874 feet	3	874 feet	3
Concrete Haul Out	874 feet	71	874 feet	71

The emission factors are multiplied by the calculated distance traveled by the trucks to estimate the PM emissions from the paved roads. A control efficiency of 80 percent was applied to account for the BMPs described previously

in Section 2.2.4 per the Western Regional Air Partnership's (WRAP) Fugitive Dust Handbook (WRAP, 2006). Table 3-8 summarizes estimated maximum short-term (lb/hr) and long-term (tpy) potential emissions of fugitive dust from the paved roads. Detailed supporting calculations are provided in Appendix A.

Table 3-8. Summary of Potential Fugitive Dust Emission Rates from Paved Roads

Pollutant	East Laydown		West Laydown	
	Paved Roads (lb/hr)	Paved Roads (tpy)	Paved Roads (lb/hr)	Paved Roads (tpy)
PM	3.63	5.77	3.63	4.11
PM_{10}	0.07	0.58	0.07	0.41
$PM_{2.5}$	0.02	0.14	0.02	0.10

lb/hr = pound per hour; tpy = ton per year

3.2.5 Unpaved Roads

Vehicles as represented by a front-end loader will be used to move aggregate between storage areas and operations. They will traverse unpaved surfaces while distributing materials. For unpaved surfaces, two equations from AP-42 Section 13.2.2 were used to calculate short-term and long-term PM emission factors.

For short-term emissions calculations (24-hour duration or less) (Equation 1a):

$$E = k(\frac{s}{12})^a \times (\frac{W}{3})^b$$

Where E = PM emission factor;
k = particle size multiplier;
s = surface material silt content; and
W = average weight of the vehicles traversing the surface.

For long-term emissions calculations (Equation 2):

$$E = k(\frac{s}{12})^a \times (\frac{W}{3})^b \times (\frac{365 - P}{365})$$

Where E = PM emission factor;
k = particle size multiplier;
sL = surface material silt content;
W = average weight of the vehicles traversing the surface; and
P = number of wet days with at least 0.01 inches of precipitation in the averaging period.

Table 3-9 provides the parameter values used in the unpaved surfaces calculations.

Table 3-9. Unpaved Surfaces Emission Factor Parameters

Parameter	Value	Basis
k (PM)	4.9	AP-42, Section 13.2.2
k (PM_{10})	1.5	AP-42, Section 13.2.2
k ($PM_{2.5}$)	0.15	AP-42, Section 13.2.2
a (PM)	0.7	AP-42, Section 13.2.2
a (PM_{10})	0.9	AP-42, Section 13.2.2
a ($PM_{2.5}$)	0.9	AP-42, Section 13.2.2
b	0.45	AP-42, Section 13.2.2
s	4.8%	AP-42, Section 13.2.2
W	20 tons	Average Loader Weight
P	77 days	National Climatic Data Center (NCDC), Pasco Tri-Cities Airport, 1991-2020

The calculated emission factors are multiplied by the total distance traveled by the front-end loaders to calculate the PM emissions from the unpaved surfaces. The total distance is estimated based on trip lengths of 413 feet multiplied by the number of trips during the appropriate period (56 per hour maximum, 325 per day maximum). A control efficiency of 80 percent was applied to account for the BMPs described previously in Section 2.2.4 per the WRAP's Fugitive Dust Handbook (WRAP, 2006). Table 3-10 summarizes estimated maximum short-term (lb/hr) and long-term (tpy) potential emissions of fugitive dust from the unpaved surfaces. Detailed supporting calculations are provided in Appendix A. Additional calculations are provided in Appendix A.

Table 3-10. Summary of Potential Fugitive Dust Emission Rates from Unpaved Surfaces

Pollutant	East Laydown		West Laydown	
	Unpaved Roads (lb/hr)	Unpaved Roads (tpy)	Unpaved Roads (lb/hr)	Unpaved Roads (tpy)
PM	0.96	1.26	0.96	1.26
PM_{10}	0.24	0.32	0.24	0.32
$PM_{2.5}$	0.02	0.03	0.02	0.03

lb/hr = pound per hour; tpy = ton per year

3.2.6 Wind Erosion of Storage Area

The sand and aggregate piled in the storage area on site are occasionally subject to wind gusts that can potentially produce fugitive dust emissions. For wind erosion of continuously active storage piles, an equation from USEPA's *Control of Open Fugitive Dust Sources* (USEPA, 1988) was used:

$$E = 1.7 \left(\frac{s}{1.5}\right)\left(\frac{365 - P}{235}\right)\left(\frac{f}{15}\right)$$

Where E = PM emission factor;
s = silt content of aggregate;
P = number of wet days with at least 0.01 inches of precipitation per year; and
f = percentage of time that the unobstructed wind speed exceeds 5.4 m/s (12 mph).

Table 3-11 provides the parameter values used in the unpaved surfaces calculations.

Table 3-11. Wind Erosion Emission Factor Parameters

Parameter	Value	Basis
s	4.8%	AP-42, Section 13.2.2
P	77 days	National Climatic Data Center (NCDC), Pasco Tri-Cities Airport, 1991-2020
f	17.6%	Percent of Wind speed greater than 12 mph according to local meteorological data in the Horse Heaven Hills

The calculated emission factors are multiplied by the surface area of each storage pile to calculate the PM emissions from wind erosion. Each storage pile was assumed to have a diameter of 65 feet and a height of 10 feet, resulting in an average surface area of 3,472 square feet per storage pile. A control efficiency of 70 percent was applied to account for the BMPs described previously in Section 2.2.4 per the WRAP's Fugitive Dust Handbook (WRAP, 2006). Table 3-12 summarizes estimated maximum short-term (lb/hr) and long-term (tpy) potential emissions of fugitive dust resulting from wind erosion. Detailed supporting calculations are located in Appendix A.

Table 3-12. Summary of Potential Fugitive Dust Emission Rates from Wind Erosion

Pollutant	East Laydown		West Laydown	
	Wind Erosion (lb/hr)	Wind Erosion (tpy)	Wind Erosion (lb/hr)	Wind Erosion (tpy)
PM	0.000974	0.0341	0.000974	0.0341
PM_{10}	0.000487	0.0171	0.000487	0.0171
$PM_{2.5}$	0.000146	0.00512	0.000146	0.00512

lb/hr = pound per hour; tpy = ton per year

3.3 SUMMARY OF CALCULATED POTENTIAL EMISSIONS

A summary of calculated potential emissions for the Project is provided in Table 3-13. A more detailed summary of pollutant emissions is provided in Appendix A along with detailed emission calculations.

Table 3-13. Maximum Annual Potential Emission Rates from the Project

Pollutant	East Laydown (tpy [a])	East Substation (tpy)	West Laydown (tpy)	West Substation (tpy)	Total (tpy)
CO	0.92	11.06	0.92	11.06	23.95
NO_x	4.02	48.24	4.02	48.24	104.52
PM	8.49	1.41	6.45	1.41	17.75
PM_{10}	1.60	1.41	1.27	1.41	5.68
$PM_{2.5}$	0.38	1.41	0.32	1.41	3.51
SO_2	0.002	0.02	0.002	0.02	0.05
VOC	0.12	1.42	0.12	1.42	3.07
Lead (Pb)	0.00002	0.00	0.00001	0.00	0.00003
Federal HAP	0.040	0.37	0.037	0.37	0.81

tpy = ton per year

4.0 REGULATORY APPLICABILITY EVALUATION

This section contains an analysis of the applicability of federal and state air quality regulations to the Project. The specific regulations and programs that are included in this review include:

- Federal NSPS;
- Federal National Emissions Standards for Hazardous Air Pollutants (NESHAP); and
- BCAA permitting and emissions standards requirements.

4.1 FEDERAL EMISSIONS STANDARDS

The backup diesel generator equipment must meet the federal emissions standards stated in 40 CFR Part 60 Subpart IIII (NSPS) and 40 CFR Part 63 Subpart ZZZZ (NESHAP). The engines being considered by the Project for installation are manufacturer-certified to meet EPA Tier 2 emissions standards for stationary emergency applications.

The federal NSPS and NESHAP emissions standards do not apply to the CBP.

4.2 BENTON CLEAN AIR AGENCY PERMITTING REQUIREMENTS

All new emissions sources must be registered with the BCAA and follow the Notice of Construction (NOC) and Application for Approval process, which also serves as the registration form for the facility. BCAA approval must be received before installation of the equipment can commence. The BCAA recommends a pre-registration meeting be conducted to learn about the proposed equipment and provide guidance on how to proceed with the NOC process.

A State Environmental Policy Act (SEPA) Checklist and a Determination of Non-Significance (DNS) are required before a facility can operate. Once the DNS is in place, the NOC application is filed with the BCAA. Forms specific to emergency generator engines and portable CBPs are available on BCAA's website. The NOC application is required to include:

- Completed and signed BCAA forms;
- A set of plans that fully describes the proposed source, including distance and height of buildings within 200 feet of the source;
- The estimated emissions that will result from the proposal, or sufficient information for BCAA to calculate the expected emissions;
- The proposed means for control of emissions;
- The base fee; and
- A SEPA checklist or DNS.

The application is subject to a 30-day review period to determine completeness. If the application is deemed to be incomplete, the 30-day completeness review clock resets. Once deemed complete, the BCAA must within 60 days issue an Order of Approval which outlines the specific requirements under federal, state, and local air quality regulations that will allow the source to operate in compliance with air quality regulations.

The Project will follow the BCAA permitting procedures.

5.0 AMBIENT AIR QUALITY ANALYSIS

5.1 INTRODUCTION

An ambient air quality dispersion modeling analysis for the Project has been conducted using procedures specified in the USEPA's *Guideline on Air Quality Models* (USEPA, 2017) and based on correspondence with Washington State Department of Ecology (Ecology).

The dispersion modeling for the Project evaluates worst-case operating conditions to predict the appropriate maximum ambient air concentration for each pollutant and averaging period. The modeled cumulative impacts are added to ambient background concentrations and the sum is compared to the NAAQS. The NAAQS are established for the criteria air pollutants by the USEPA in accordance with the federal CAA to protect public health and public welfare. Section 302(h) of the CAA defines "welfare" to include effects on soils, water, crops, wildlife, weather, damage to and deterioration of property, effects on economic values, and personal comfort and well-being. Table 5-1 provides the NAAQS as well as the modeling rank basis, as defined by USEPA, used for the assessment of this Project's compliance with the various criteria.

Table 5-1. NAAQS

Pollutant	Averaging Period	NAAQS (µg/m^3) [a]	Rank for NAAQS Assessment
$PM_{2.5}$	24-hour	35	H8H [b] (5-year Average)
	Annual	12	H1H [c] (5-year Average)
PM_{10}	24-hour	150	H6H [d] over 5 years
CO	1-hour	40,000	H2H [e]
	8-hour	10,000	H2H
NO_2	1-hour	188	H8H (5-year Average)
	Annual	100	H1H [c]
SO_2	1-hour	196	H4H [f] (5-year Average)
	3-hour	1,300	H2H
	24-hour	365	H2H
	Annual	80	H1H

[a] micrograms per cubic meter
[b] H8H = highest eighth high.
[c] H1H = highest first high.
[d] H6H = highest sixth high.
[e] H2H = highest second high.
[f] H4H = highest fourth high.

NO_X emissions from the Project sources are released primarily in the form of NO, and these emissions convert to NO_2 in the atmosphere. The NO_2 impact analysis utilized the default Tier 2 NO_X to NO_2 conversion rates (Ambient Ratio Method [ARM] and ARM2). The Tier 2 approaches assume NO_X converts to NO_2 at a rate consistent with a conservative NO_2/NO_X ambient ratio.

5.2 SOURCE DATA AND OPERATING SCENARIOS

Modeled emissions include PM emissions from all facility operations including material storage and handling as well as combustion emissions from the CBP. Emission sources and rates were identified in Section 3.

For the purposes of PM_{10} and $PM_{2.5}$ dispersion modeling, the maximum 24-hour emission rates were modeled rather than the maximum 1-hour emission rates. For CO and SO_2, the maximum 1-hour emission rates were

modeled. For NO_2, consistent with guidance on the modeling of intermittent sources (USEPA, 2011a), annualized emission rates were modeled based on the assumption that each stationary engine would operate up to 500 hours per year (i.e., maximum 1-hour emission rate times 500/8760). The modeling did not impose an operational restriction on the time of day, days of the week, or months of the year. Even though emission sources will be phased and will operate intermittently, all sources were conservatively modeled as operating consistently over the entire year. Emissions released through a stack or vent were modeled as point sources. Emissions from material handling operations (drop points) were modeled as volume sources. The haul roads were modeled as line sources. The front-end loader activity and the wind erosion emissions were modeled as area sources.

Model input parameters for fugitive dust sources were based on guidance provided in the National Sand, Stone, and Gravel Association's Modeling Fugitive Dust Sources with AERMOD (NSSGA, 2007). Detailed model inputs are provided in Appendix B. Figures 5-1a. 5-1b and 5-1c show the modeled source configurations.

As mentioned previously, the project consists of two phases. Source groups were used to group activities related to each phase, and model associated emissions based on duration of each phase.

5.3 MODEL SELECTION

The most recent version of the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) was used in this modeling analysis. AERMOD is USEPA's preferred near-field dispersion modeling system for a wide range of regulatory applications. The AERMOD modeling system includes four regulatory components: AERMOD, AERMAP (terrain processor), AERMET (meteorological processor), and BPIP-Prime (building input processor). The current versions of AERMOD (Version 22112), AERMET (Version 22112), AERMAP (Version 18081) and BPIP-Prime (Version 04274) have been used.

5.4 METEOROLOGICAL DATA FOR AERMOD

A 5-year hourly meteorological data set was processed using AERMET to use for input to AERMOD. The processed data consists of hourly surface observations of wind speed and direction collected at the Tri-Cities Airport in Pasco, Washington and upper air data collected by the National Weather Service (NWS) in Spokane, Washington for the period 2018 through 2022. The meteorological data were collected approximately 15 miles northeast of the Project site. A wind rose plot depicting the frequencies of wind speed and direction for this meteorological data set is provided in Figure 5-2 (the wind rose depicts the direction from which the wind is blowing).

5.5 LAND USE

A land use determination has been made following the classification technique suggested by Auer in accordance with USEPA modeling guidance. The classification determination was conducted by assessing land use categories within a 3-kilometer (km) radius of the Project Site. Review of the 3-km area indicates that the area within the 3-km radius can be characterized as rural. Therefore, rural dispersion coefficients were used in the air quality modeling analysis.

5.6 GOOD ENGINEERING PRACTICE STACK HEIGHT ANALYSIS

A Good Engineering Practice (GEP) stack height analysis has been performed based on the Project structures to determine the potential for building-induced aerodynamic downwash for the proposed stacks. The analysis procedures described in USEPA's Guidelines for Determination of Good Engineering Practice Stack Height (USEPA 1985) have been used.

The "GEP stack height" is defined as the greater of 65 meters or the formula height. The "formula height" is based on the observed phenomena of disturbed atmospheric flow in the immediate vicinity of a structure resulting in higher

ground-level concentrations at a closer proximity than would otherwise occur. It identifies the minimum stack height at which significant aerodynamic downwash is avoided.

The GEP formula stack height, as defined by USEPA in the 1985 final regulation, is calculated as follows:

$$H_{GEP} = H_{BLDG} + 1.5L$$

Where:

- H_{GEP} is the calculated GEP formula height;
- H_{BLDG} is the height of the nearby structure; and
- L is the lesser dimension (height or projected width) of the nearby structure.

Both the height and width of the structure are determined from the frontal area of the structure projected onto the plane perpendicular to the direction of the wind. The GEP stack height is based on the plane projection of any structure that results in the greatest calculated height. For the purpose of the GEP analysis, nearby refers to the "sphere of influence" defined as 5 times L (the lesser dimension – height or projected width – of the nearby structure), downwind from the trailing edge of the structure.

The USEPA's Building Profile Input Program (BPIP-Prime, v04274) that is appropriate for use with the PRIME algorithms in AERMOD has been used. The building dimensions and coordinates for each potentially influencing structure were input to BPIP-Prime to determine direction-specific building dimension data for input to AERMOD.

The exhaust emissions of the stacks below their calculated GEP heights will experience the aerodynamic effects of downwash. For each stack the controlling structures can differ by wind direction, and wind-direction specific building dimensions are generated by BPIP-Prime for input to AERMOD. AERMOD then accounts for potential downwash from nearby structures in the dispersion calculations. The PRIME algorithms in AERMOD calculate the dimensions of the structure's wake, from the cavity immediately downwind of the structure to the far wake.

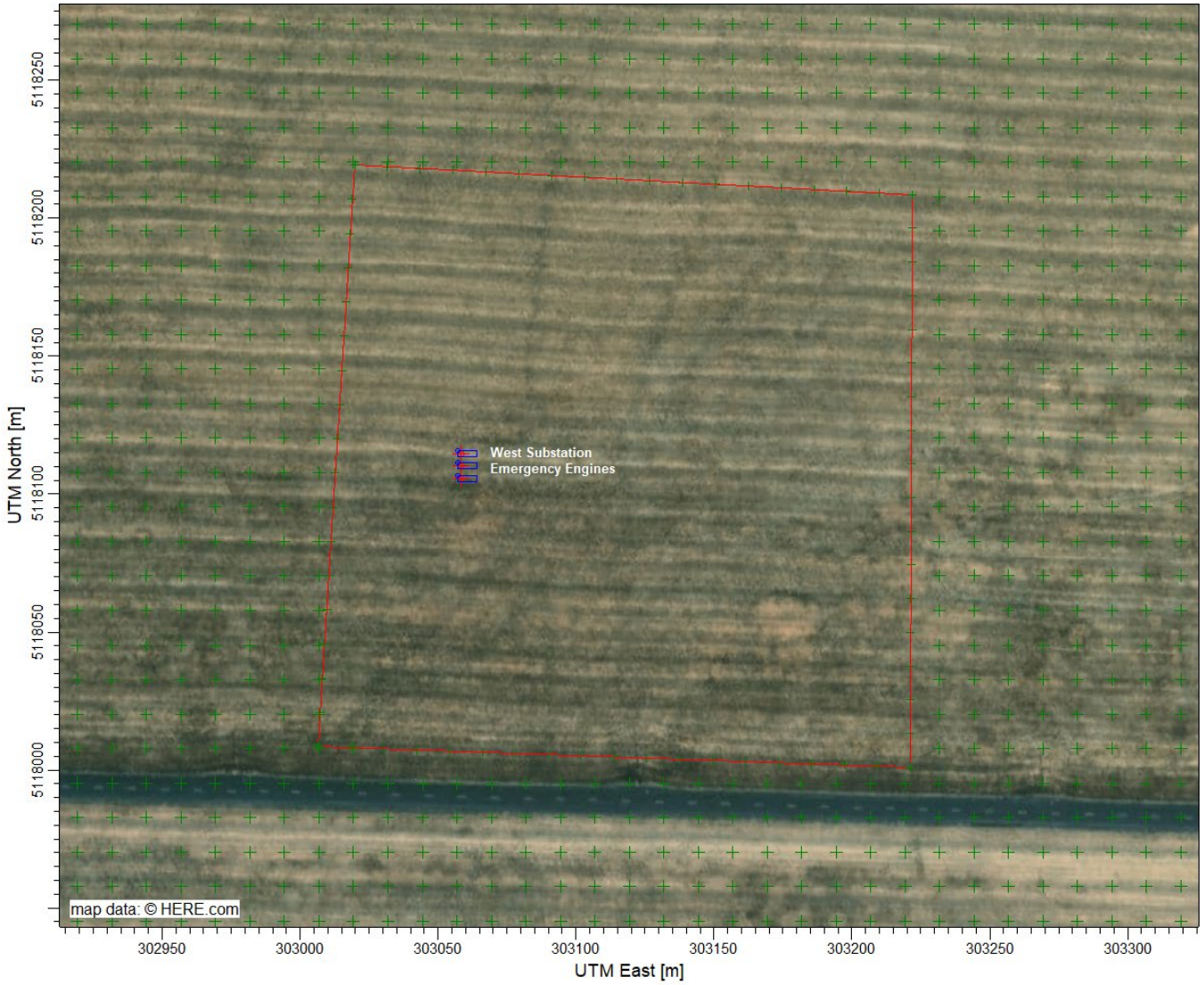

Figure 5-1a. Modeled Source Configuration: West Substation

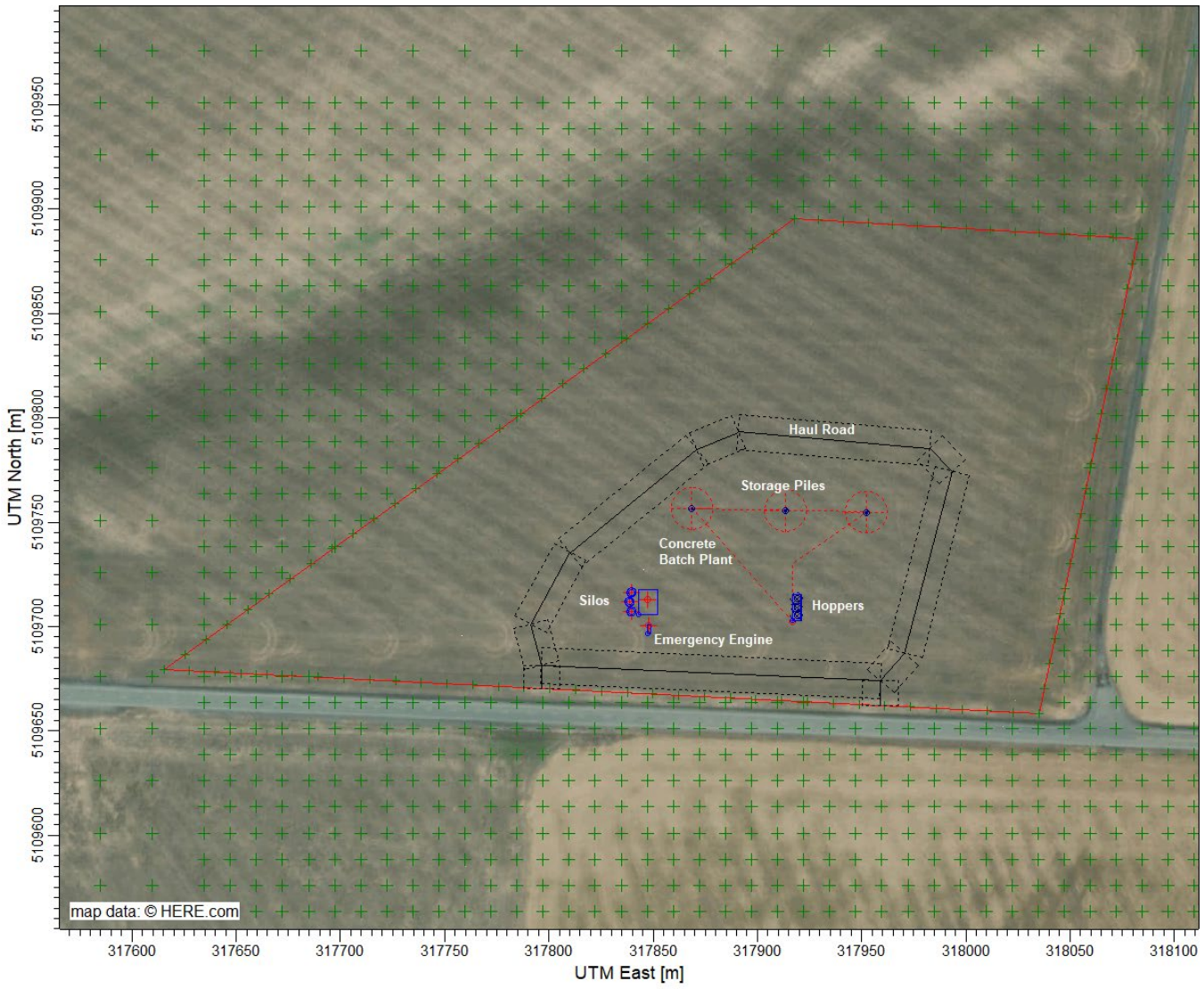

Figure 5-1b. Modeled Source Configuration: West Laydown

Figure 5-1c. Modeled Source Configuration: East Substation and Laydown

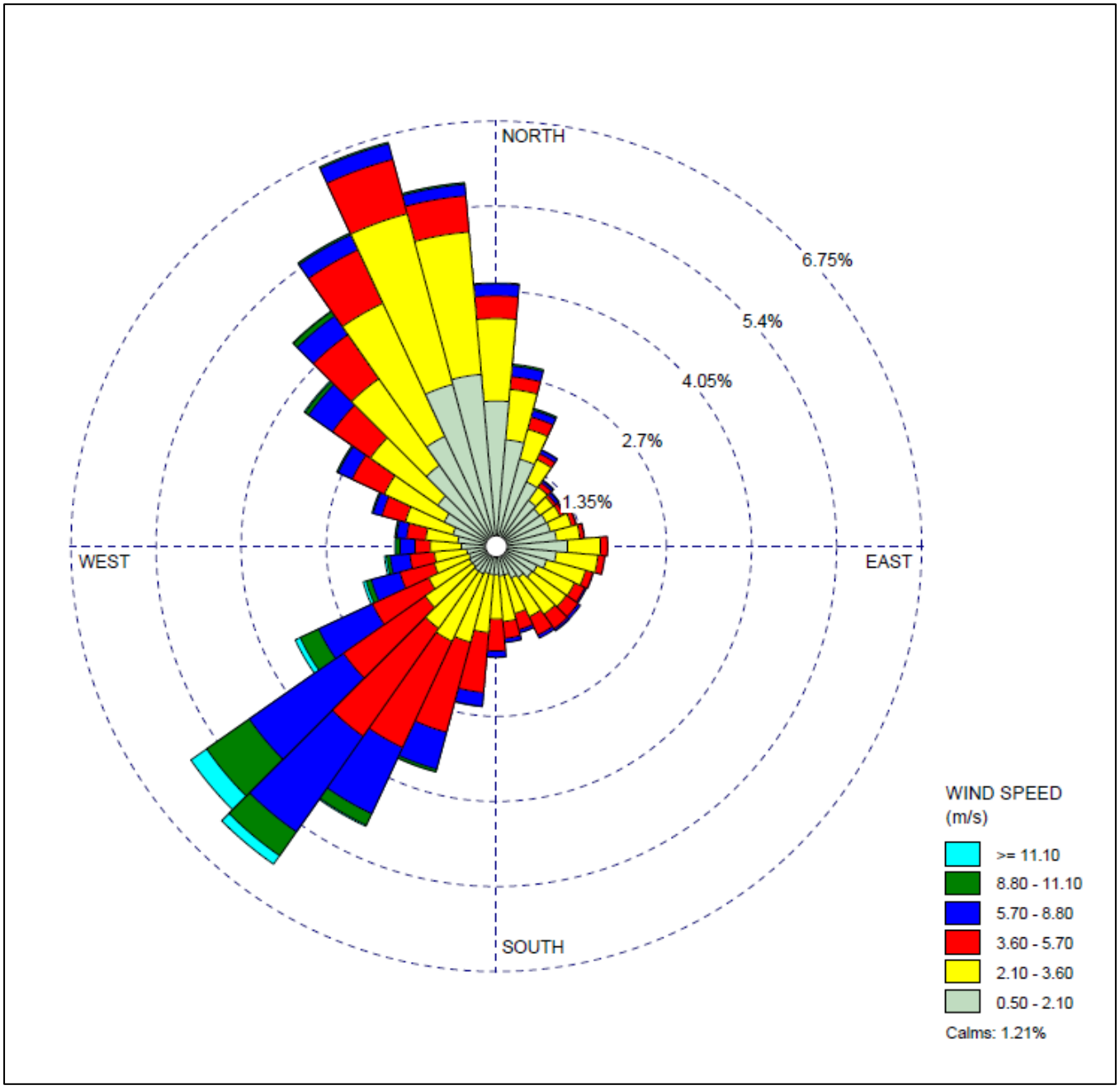

Figure 5-2. Five-Year (2018-2022) Wind Rose of Measurements from Tri-Cities Airport in Pasco, WA

5.7 RECEPTOR GRID AND AERMAP PROCESSING

Discrete receptors are placed at intervals of 12.5 meters along the Project fence line. A nested Cartesian grid was extended out from the fence line at the following receptor intervals and distances:

- At 12.5-meter intervals from the Project Site fence line to 150 meters;
- At 25-meter intervals from 150 meters to 400 meters;
- At 50-meter intervals from 400 meters to 900 meters;
- At 100-meter intervals from 900 meters to 2,000 meters;
- At 300-meter intervals from 2,000 to 4,500 meters; and
- At 600-meter intervals at from 4,500 to 10,000 meters.

Receptor elevations were assigned by using USEPA's AERMAP software tool (version 18081; USEPA, 2018), which is designed to extract elevations from the U.S. Geological Survey (USGS) Digital Elevation Model (DEM) files and USGS National Elevation Dataset (NED) files. AERMAP is the terrain preprocessor for AERMOD and uses the following procedure to assign elevations to a receptor:

- For each receptor, the program searches through the USGS input files to determine the two profiles (longitudes or eastings) that straddle this receptor.
- For each of these two profiles, the program then searches through the nodes in the USGS input files to determine which two rows (latitudes or northings) straddle the receptor.
- The program then calculates the coordinates of these four points and reads the elevations for these four points.
- A 2-dimensional distance-weighted interpolation is used to determine the elevation at the receptor location based on the elevations at the four nodes determined above.

NED data with a resolution of 1/3 arc-second (roughly 10 meters) were used as inputs to AERMAP. The NED data domain was sufficient to properly account for terrain that would factor into the critical hill height calculations. Receptor elevations generated by AERMAP were then visually confirmed with the actual USGS 7.5-minute topographic maps to ensure accurate representation of terrain features. Based on guidance from Ecology, flagpole receptor heights were set to 1.5 meters above ground. Figure 5-3 shows the receptors included in the modeling analysis.

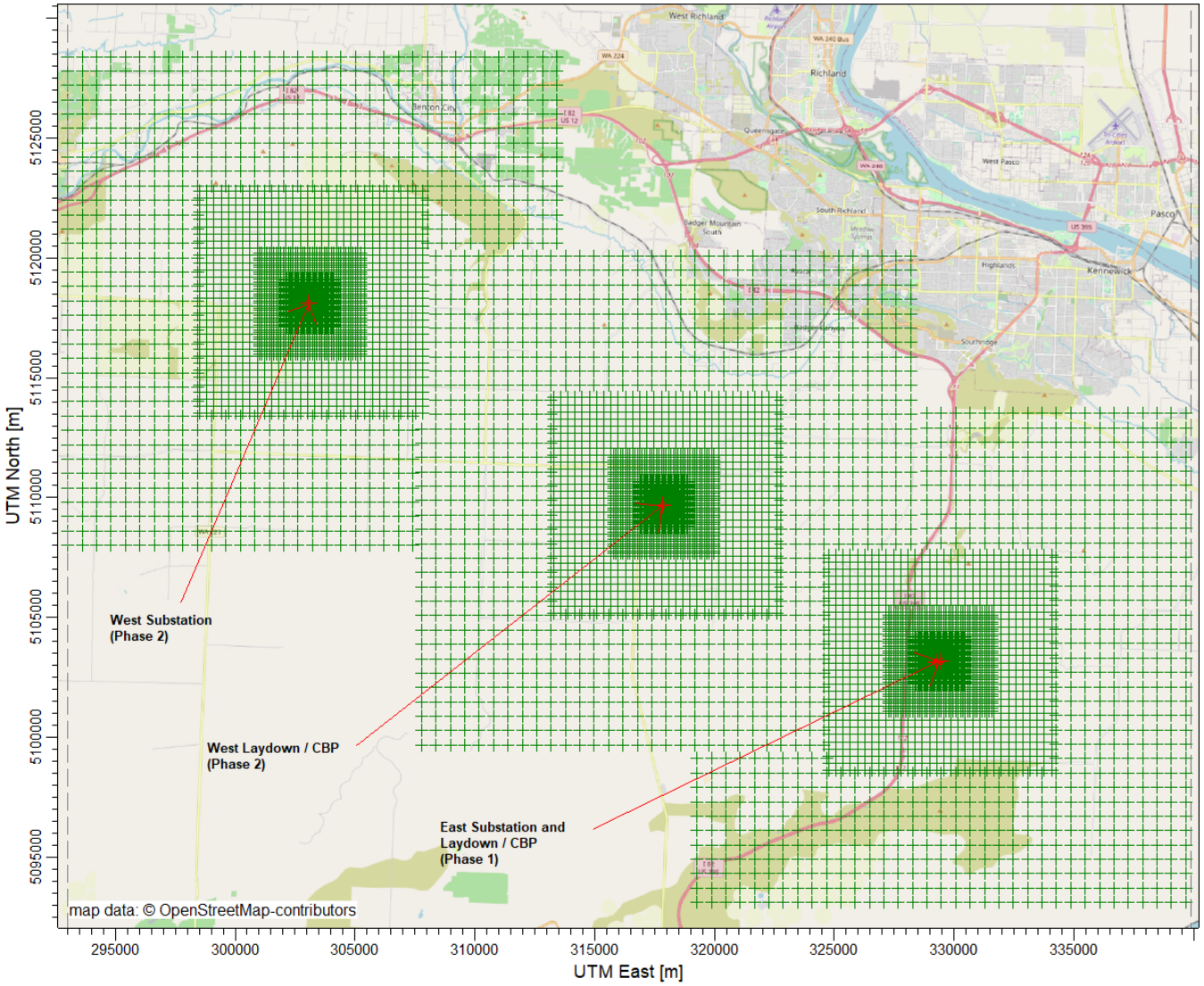

Figure 5-3. Modeled Receptor Grids

5.8 AMBIENT BACKGROUND DATA

Per guidance from Ecology, data from the NW-AIRQUEST tool was used to determine ambient background concentrations for use in the air quality analysis. In collaboration between Ecology, the Idaho Department of Environmental Quality, and the Oregon Department of Environmental Quality, the tool was created using model and monitoring data from 2014 through 2017 to estimate background concentrations of criteria air pollutant design values at user-specified locations in Washington, Idaho, and Oregon (IDEQ 2019). A location near the center of the modeled emissions sources was specified and representative criteria pollutant design values were provided. The representative ambient air quality background concentrations are provided in Table 5-2.

Table 5-2. Ambient Background Air Quality Concentrations

Pollutant	Averaging Period	Rank	Background Concentration (µg/m³)	NAAQS (µg/m³)	Ambient Background % of NAAQS
$PM_{2.5}$	24-hour	98th percentile	17.5	35	50%
	Annual	Mean	5.7	12	48%
PM_{10}	24-hour	2nd high	71.6	150	48%
CO	1-hour	2nd high	1,386	40,000	3%
	8-hour	2nd high	962	10,000	10%
NO_2	1-hour	98th percentile	19.0	188	10%
	Annual	Mean	3.8	100	4%
SO_2	1-hour	2nd high	12.8	196	7%
	3-hour	2nd high	17.0	1,300	1%
	24-hour	2nd high	5.8	365	2%
	Annual	Mean	1.0	80	1%

Notes:
Monitor located at 46.130541°, -119.381191°
Source: https://idahodeq.maps.arcgis.com/apps/MapSeries/index.html?appid=0c8a006e11fe4ec5939804b873098dfe

5.9 MODELING RESULTS

The modeling analyses were conducted using the most current version of AERMOD (Version 22112) along with the meteorological data as described in Section 5.4. The analyses were conducted to demonstrate compliance with the NAAQS. All Project emissions sources were assumed to be operating at maximum potential emission rates to assess compliance with the NAAQS. The modeled results for the Project are summarized in Table 5-3 for all pollutants modeled. Representative background concentrations were added to modeled impacts and the total concentrations were then compared to the NAAQS. As shown in Table 5-3, emissions from the Project will not cause or contribute to a violation of the NAAQS.

The modeling of fugitive dust emissions is known to over-predict ambient PM_{10} and $PM_{2.5}$ concentrations, such that the predictions presented here should be regarded as conservative overestimates of ambient air quality impacts. AERMOD does not account for the episodic (non-continuous) nature of fugitive dust emissions sources, does not properly address near-source plume depletion, and does not consider the removal of dust in plumes by trees, berms, and other obstacles. Cowherd (2009) identified deficiencies with model representation of fugitive dust sources, and assigned factors of overestimation to the deficiencies:

- Misrepresentation of haul roads as continuously emitting sources, factor of 2 overestimation;
- Cumulative effects of modeling deficiencies, factor of 4 overestimation for “average” groundcover;
- Exclusion of near-source agglomeration and enhanced deposition, up to a factor of 6 overestimation, depending on wind and groundcover; and
- Exclusion of trapping by vertical obstacles during horizontal transport, factor of 2 to 6 overestimation, depending on wind and groundcover;

Given these deficiencies, the worst-case ambient concentrations of PM_{10} and $PM_{2.5}$ resulting from the Project are expected to be considerably less than those presented in Table 5-3. Additionally, due to the broad spatial and temporal distribution of construction activities (i.e., construction activities across the Project will be spread over an expansive area and will likely not occur simultaneously), emissions from the generators and CBP are not expected

to interact with the balance of construction activities in a way that would cause or contribute to a violation of the NAAQS.

Figures in Appendix C illustrate the extents of maximum predicted pollutant concentrations relative to the whole Project area and surrounding residences for $PM_{2.5}$ (24-hour and Annual), PM_{10} (24-hour), and NO_2 (1-hour). Figures show areas where design value concentrations with ambient background are predicted to take up more than 50% of the NAAQS. For 24-hour $PM_{2.5}$, since ambient background concentrations already take up 50% of the NAAQS, figures show areas where total concentrations are predicted to take up 55% of the NAAQS. For 1-hour NO_2, areas where total concentrations take up 50% of the NAAQS are limited, and therefore are only shown in the near-field relative to surrounding residences. The figures show that predicted maximum pollutant concentrations, inclusive of a number of conservative assumptions, are highly localized and drop rapidly with distance from the sources. The figures also show that the emissions modeled are not expected to cause violations at the nearest residential receptors.

Table 5-3. Maximum AERMOD-Predicted Concentrations and NAAQS Compliance Assessment

Pollutant	Averaging Period	Rank Basis	Predicted Project Concentration (µg/m³)	Ambient Background (µg/m³)	Total Concentration (µg/m³)	NAAQS (µg/m³)
$PM_{2.5}$	24-hour	H8H (5-year Average)	16.9	17.5	34	35
	Annual	H1H (5-year Average)	4.2	5.7	10	12
PM_{10}	24-Hour	H6H (5-year Duration)	59.8	71.6	131	150
CO	1-hour	H2H	624.9	1,386	2,011	40,000
	8-hour	H2H	445.3	962	1,407	10,000
NO_2	1-hour	H8H (5-year Average)	105.6	19.0	125	188
	Annual	H1H	6.9	3.8	11	100
SO_2	1-hour	H4H (5-year Average)	1.1	12.8	14	196
	3-hour	H2H	1.3	17.0	18	1,300
	24-hour	H2H	0.6	5.8	6	365
	Annual	H1H	0.07	1.0	1	80

µg/m³ = microgram per cubic meter

6.0 REFERENCES

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APPENDIX A: EMISSIONS CALCULATIONS

Horse Heaven Wind Farm, LLC
Summary of Emissions

	Location	Substation Location	Equipment Type	Units	Criteria Pollutants							
					CO	NOx	PM	PM_{10}	$PM_{2.5}$	SO_2	VOC	Lead
Uncontrolled	Location 1	East Substation	East Load Bank Engines	(lb/hr)	44.22	192.96	5.63	5.63	5.63	0.10	5.67	-
				(tpy)	11.06	48.24	1.41	1.41	1.41	0.02	1.42	-
		East Laydown	East CBP Engine	(lb/hr)	3.69	16.08	0.47	0.47	0.47	0.01	0.47	-
				(tpy)	0.92	4.02	0.12	0.12	0.12	0.00	0.12	-
			East CBP Mat'l Handling	(lb/hr)	-	-	181.87	24.27	3.66	-	-	0.01
				(tpy)	-	-	51.61	6.90	1.07	-	-	0.00
	Location 2	West Substation	West Load Bank Engines	(lb/hr)	44.22	192.96	5.63	5.63	5.63	0.10	5.67	-
				(tpy)	11.06	48.24	1.41	1.41	1.41	0.02	1.42	-
	Location 3	West Laydown	West CBP Engine	(lb/hr)	3.69	16.08	0.47	0.47	0.47	0.01	0.47	-
				(tpy)	0.92	4.02	0.12	0.12	0.12	0.00	0.12	-
			West CBP Mat'l Handling	(lb/hr)	-	-	181.87	24.27	3.66	-	-	0.01
				(tpy)	-	-	38.59	5.39	0.81	-	-	0.00
	Total:			**(lb/hr)**	**95.81**	**418.08**	**375.94**	**60.73**	**19.52**	**0.21**	**12.28**	**0.02**
				(tpy)	**23.95**	**104.52**	**93.25**	**15.34**	**4.93**	**0.05**	**3.07**	**0.01**
Controlled	Location 1	East Substation	East Load Bank Engines	(lb/hr)	44.22	192.96	5.63	5.63	5.63	0.10	5.67	-
				(tpy)	11.06	48.24	1.41	1.41	1.41	0.02	1.42	-
		East Laydown	East CBP Engine	(lb/hr)	3.69	16.08	0.47	0.47	0.47	0.01	0.47	-
				(tpy)	0.92	4.02	0.12	0.12	0.12	0.00	0.12	-
			East CBP Mat'l Handling	(lb/hr)	-	-	5.36	0.65	0.09	-	-	0.00
				(tpy)	-	-	8.37	1.48	0.26	-	-	0.00
	Location 2	West Substation	West Load Bank Engines	(lb/hr)	44.22	192.96	5.63	5.63	5.63	0.10	5.67	-
				(tpy)	11.06	48.24	1.41	1.41	1.41	0.02	1.42	-
	Location 3	West Laydown	West CBP Engine	(lb/hr)	3.69	16.08	0.47	0.47	0.47	0.01	0.47	-
				(tpy)	0.92	4.02	0.12	0.12	0.12	0.00	0.12	-
			West CBP Mat'l Handling	(lb/hr)	-	-	5.36	0.65	0.09	-	-	0.00
				(tpy)	-	-	6.33	1.15	0.20	-	-	0.00
	Total:			**(lb/hr)**	**95.81**	**418.08**	**22.91**	**13.50**	**12.38**	**0.21**	**12.28**	**0.01**
				(tpy)	**23.95**	**104.52**	**17.75**	**5.68**	**3.51**	**0.05**	**3.07**	**0.00**

Horse Heaven Wind Farm, LLC
Summary of Emissions

	Location	Substation Location	Equipment Type	Units	Hazardous Air Pollutants																
					Acetaldehyde	Acrolein	Arsenic	Benzene	Beryllium	Cadmium	Total Chromium	Formaldehyde	Lead	Manganese	Naphthalene	Nickel	Total Phosphorus	Selenium	Toluene	Xylenes	Total PAH	Total HAPs
Uncontrolled	Location 1	East Substation	East Load	(lb/hr)	1.42E-03	4.43E-04	-	4.37E-02	-	-	-	4.44E-03	0.00E+00	-	7.32E-03	-	-	-	1.58E-02	1.09E-02	1.19E-02	8.40E-02
			Bank Engines	(tpy)	6.21E-03	1.94E-03	-	1.91E-01	-	-	-	1.94E-02	0.00E+00	-	3.20E-02	-	-	-	6.93E-02	4.76E-02	5.23E-02	3.68E-01
		East Laydown	East CBP Engine	(lb/hr)	1.18E-04	3.70E-05	-	3.64E-03	-	-	-	3.70E-04	0.00E+00	-	6.10E-04	-	-	-	1.32E-03	9.05E-04	9.94E-04	7.00E-03
				(tpy)	5.18E-04	1.62E-04	-	1.59E-02	-	-	-	1.62E-03	0.00E+00	-	2.67E-03	-	-	-	5.77E-03	3.96E-03	4.35E-03	3.06E-02
			East CBP Mat'l Handling	(lb/hr)	-	-	2.11E-02	-	1.58E-03	9.18E-05	2.40E-02	-	1.00E-02	9.11E-02	-	4.74E-02	7.50E-02	2.06E-03	-	-	-	2.72E-01
				(tpy)	-	-	6.35E-03	-	4.76E-04	2.77E-05	7.23E-03	-	3.02E-03	2.75E-02	-	1.43E-02	2.26E-02	6.21E-04	-	-	-	8.20E-02
	Location 2	West Substation	West Load	(lb/hr)	1.42E-03	4.43E-04	-	4.37E-02	-	-	-	4.44E-03	0.00E+00	-	7.32E-03	-	-	-	1.58E-02	1.09E-02	1.19E-02	8.40E-02
			Bank Engines	(tpy)	6.21E-03	1.94E-03	-	1.91E-01	-	-	-	1.94E-02	0.00E+00	-	3.20E-02	-	-	-	6.93E-02	4.76E-02	5.23E-02	3.68E-01
	Location 3	West Laydown	West CBP Engine	(lb/hr)	1.18E-04	3.70E-05	-	3.64E-03	-	-	-	3.70E-04	0.00E+00	-	6.10E-04	-	-	-	1.32E-03	9.05E-04	9.94E-04	7.00E-03
				(tpy)	5.18E-04	1.62E-04	-	1.59E-02	-	-	-	1.62E-03	0.00E+00	-	2.67E-03	-	-	-	5.77E-03	3.96E-03	4.35E-03	3.06E-02
			West CBP Mat'l Handling	(lb/hr)	-	-	2.11E-02	-	1.58E-03	9.18E-05	2.40E-02	-	1.00E-02	9.11E-02	-	4.74E-02	7.50E-02	2.06E-03	-	-	-	2.72E-01
				(tpy)	-	-	4.52E-03	-	3.39E-04	1.97E-05	5.14E-03	-	2.15E-03	1.95E-02	-	1.02E-02	1.61E-02	4.42E-04	-	-	-	5.84E-02
			Total:	**(lb/hr)**	**0.00**	**0.00**	**0.04**	**0.09**	**0.00**	**0.00**	**0.05**	**0.01**	**0.02**	**0.18**	**0.02**	**0.09**	**0.15**	**0.00**	**0.03**	**0.02**	**0.03**	**0.73**
				(tpy)	**0.01**	**0.00**	**0.01**	**0.41**	**0.00**	**0.00**	**0.01**	**0.04**	**0.01**	**0.05**	**0.07**	**0.02**	**0.04**	**0.00**	**0.15**	**0.10**	**0.11**	**0.94**
Controlled	Location 1	East Substation	East Load	(lb/hr)	1.42E-03	4.43E-04	-	4.37E-02	-	-	-	4.44E-03	0.00E+00	-	7.32E-03	-	-	-	1.58E-02	1.09E-02	1.19E-02	0.08
			Bank Engines	(tpy)	6.21E-03	1.94E-03	-	1.91E-01	-	-	-	1.94E-02	0.00E+00	-	3.20E-02	-	-	-	6.93E-02	4.76E-02	5.23E-02	3.68E-01
		East Laydown	East CBP Engine	(lb/hr)	1.18E-04	3.70E-05	-	3.64E-03	-	-	-	3.70E-04	0.00E+00	-	6.10E-04	-	-	-	1.32E-03	9.05E-04	9.94E-04	7.00E-03
				(tpy)	5.18E-04	1.62E-04	-	1.59E-02	-	-	-	1.62E-03	0.00E+00	-	2.67E-03	-	-	-	5.77E-03	3.96E-03	4.35E-03	3.06E-02
			East CBP Mat'l Handling	(lb/hr)	-	-	2.28E-03	-	2.77E-04	1.98E-05	7.61E-03	-	2.93E-03	3.01E-02	-	7.13E-02	2.26E-02	2.64E-04	-	-	-	1.37E-01
				(tpy)	-	-	1.60E-04	-	1.94E-05	1.39E-06	5.32E-04	-	2.05E-04	2.11E-03	-	4.99E-03	1.58E-03	1.84E-05	-	-	-	9.60E-03
	Location 2	West Substation	West Load	(lb/hr)	1.42E-03	4.43E-04	-	4.37E-02	-	-	-	4.44E-03	0.00E+00	-	7.32E-03	-	-	-	1.58E-02	1.09E-02	1.19E-02	8.40E-02
			Bank Engines	(tpy)	6.21E-03	1.94E-03	-	1.91E-01	-	-	-	1.94E-02	0.00E+00	-	3.20E-02	-	-	-	6.93E-02	4.76E-02	5.23E-02	3.68E-01
	Location 3	West Laydown	West CBP Engine	(lb/hr)	1.18E-04	3.70E-05	-	3.64E-03	-	-	-	3.70E-04	0.00E+00	-	6.10E-04	-	-	-	1.32E-03	9.05E-04	9.94E-04	7.00E-03
				(tpy)	5.18E-04	1.62E-04	-	1.59E-02	-	-	-	1.62E-03	0.00E+00	-	2.67E-03	-	-	-	5.77E-03	3.96E-03	4.35E-03	3.06E-02
			West CBP Mat'l Handling	(lb/hr)	-	-	2.28E-03	-	2.77E-04	1.98E-05	7.61E-03	-	2.93E-03	3.01E-02	-	7.13E-02	2.26E-02	2.64E-04	-	-	-	1.37E-01
				(tpy)	-	-	1.14E-04	-	1.38E-05	9.87E-07	3.79E-04	-	1.46E-04	1.50E-03	-	3.55E-03	1.12E-03	1.31E-05	-	-	-	6.84E-03
			Total:	**(lb/hr)**	**0.00**	**0.00**	**0.00**	**0.09**	**0.00**	**0.00**	**0.02**	**0.01**	**0.01**	**0.06**	**0.02**	**0.14**	**0.05**	**0.00**	**0.03**	**0.02**	**0.03**	**0.46**
				(tpy)	**0.01**	**0.00**	**0.00**	**0.41**	**0.00**	**0.00**	**0.00**	**0.04**	**0.00**	**0.00**	**0.07**	**0.01**	**0.00**	**0.00**	**0.15**	**0.10**	**0.11**	**0.81**

Horse Heaven Wind Farm, LLC
Summary of Emissions

	Location	Substation Location	Equipment Type	Units	Polycyclic Aromatic Hydrocarbons															
					Acena-phthene	Acenaph-thylene	Anthracene	Benz(a)an-thracene	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,l)-perylene	Benzo(k)fluor anthene	Chrysene	Dibenz(a,h)ant hracene	Fluoranthene	Fluorene	Indeno(1,2,3,-d)pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAH
Uncontrolled	Location 1	East Substation	East Load Bank Engines	(lb/hr)	-	-	6.92E-05	-	-	-	-	1.23E-05	8.61E-05	1.95E-05	2.27E-04	7.20E-04	2.33E-05	7.32E-03	2.30E-03	2.09E-04	1.19E-02
				(tpy)	-	-	3.03E-04	-	-	-	-	5.37E-05	3.77E-04	8.53E-05	9.93E-04	3.16E-03	1.02E-04	3.20E-02	1.01E-02	9.15E-04	5.23E-02
		East Laydown	East CBP Engine	(lb/hr)	-	-	5.77E-06	-	-	-	-	1.02E-06	7.18E-06	1.62E-06	1.89E-05	6.00E-05	1.94E-06	6.10E-04	1.91E-04	1.74E-05	9.94E-04
				(tpy)	-	-	2.53E-05	-	-	-	-	4.48E-06	3.14E-05	7.11E-06	8.28E-05	2.63E-04	8.50E-06	2.67E-03	8.38E-04	7.62E-05	4.35E-03
			East CBP Mat'l Handling	(lb/hr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				(tpy)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Location 2	West Substation	West Load Bank Engines	(lb/hr)	-	-	6.92E-05	-	-	-	-	1.23E-05	8.61E-05	1.95E-05	2.27E-04	7.20E-04	2.33E-05	7.32E-03	2.30E-03	2.09E-04	1.19E-02
				(tpy)	-	-	3.03E-04	-	-	-	-	5.37E-05	3.77E-04	8.53E-05	9.93E-04	3.16E-03	1.02E-04	3.20E-02	1.01E-02	9.15E-04	5.23E-02
	Location 3	West Laydown	West CBP Engine	(lb/hr)	-	-	5.77E-06	-	-	-	-	1.02E-06	7.18E-06	1.62E-06	1.89E-05	6.00E-05	1.94E-06	6.10E-04	1.91E-04	1.74E-05	9.94E-04
				(tpy)	-	-	2.53E-05	-	-	-	-	4.48E-06	3.14E-05	7.11E-06	8.28E-05	2.63E-04	8.50E-06	2.67E-03	8.38E-04	7.62E-05	4.35E-03
			West CBP Mat'l Handling	(lb/hr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				(tpy)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Total:	**(lb/hr)**	**-**	**-**	**0.00**	**-**	**-**	**-**	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.03**
				(tpy)	**-**	**-**	**0.00**	**-**	**-**	**-**	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.07**	**0.02**	**0.00**	**0.11**
Controlled	Location 1	East Substation	East Load Bank Engines	(lb/hr)	-	-	6.92E-05	-	-	-	-	1.23E-05	8.61E-05	1.95E-05	2.27E-04	7.20E-04	2.33E-05	7.32E-03	2.30E-03	2.09E-04	1.19E-02
				(tpy)	-	-	3.03E-04	-	-	-	-	5.37E-05	3.77E-04	8.53E-05	9.93E-04	3.16E-03	1.02E-04	3.20E-02	1.01E-02	9.15E-04	5.23E-02
		East Laydown	East CBP Engine	(lb/hr)	-	-	5.77E-06	-	-	-	-	1.02E-06	7.18E-06	1.62E-06	1.89E-05	6.00E-05	1.94E-06	6.10E-04	1.91E-04	1.74E-05	9.94E-04
				(tpy)	-	-	2.53E-05	-	-	-	-	4.48E-06	3.14E-05	7.11E-06	8.28E-05	2.63E-04	8.50E-06	2.67E-03	8.38E-04	7.62E-05	4.35E-03
			East CBP Mat'l Handling	(lb/hr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				(tpy)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Location 2	West Substation	West Load Bank Engines	(lb/hr)	-	-	6.92E-05	-	-	-	-	1.23E-05	8.61E-05	1.95E-05	2.27E-04	7.20E-04	2.33E-05	7.32E-03	2.30E-03	2.09E-04	1.19E-02
				(tpy)	-	-	3.03E-04	-	-	-	-	5.37E-05	3.77E-04	8.53E-05	9.93E-04	3.16E-03	1.02E-04	3.20E-02	1.01E-02	9.15E-04	5.23E-02
	Location 3	West Laydown	West CBP Engine	(lb/hr)	-	-	5.77E-06	-	-	-	-	1.02E-06	7.18E-06	1.62E-06	1.89E-05	6.00E-05	1.94E-06	6.10E-04	1.91E-04	1.74E-05	9.94E-04
				(tpy)	-	-	2.53E-05	-	-	-	-	4.48E-06	3.14E-05	7.11E-06	8.28E-05	2.63E-04	8.50E-06	2.67E-03	8.38E-04	7.62E-05	4.35E-03
			West CBP Mat'l Handling	(lb/hr)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
				(tpy)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Total:	**(lb/hr)**	**-**	**-**	**0.00**	**-**	**-**	**-**	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.02**	**0.00**	**0.00**	**0.03**
				(tpy)	**-**	**-**	**0.00**	**-**	**-**	**-**	**-**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.07**	**0.02**	**0.00**	**0.11**

Horse Heaven Wind Farm, LLC
Concrete Batch Plant Parameters

	Concrete Usage and Schedule	Units	Location			Source
			East	West	Total	
Concrete Usage	Turbine Foundation	(CY)	76,565	53,638	130,203	Estimated usage based on Scout-provided data.
	BESS Foundation	(CY)	2,045	2,045	4,090	Estimated usage based on Scout-provided data.
	Substation Foundation	(CY)	960	960	1,920	Estimated usage based on Scout-provided data.
	Concrete Usage	(CY)	79,570	56,643	136,213	Sum of all foundations.
	Percent Used by Each Location	(%)	58%	42%	100%	Calculated percentage.
	Concrete Usage (Applied Margins)	(CY)	99,463	70,804	170,266	Assume 25% increase in margin to account for uncertainty and spoiled batches.
		(ton)	198,925	141,608	340,533	
Max Operating Schedule	Estimated Operating Duration	(months)	4	4	8	Estimated project timeline.
	Max Hourly Production	(CY/hr)	165	165		The operating capacity of the largest possible concrete batch plant is 165 cy/hr.
		(ton/hr)	330	330		Assume 2 tons = 1 CY of concrete.
	Max Daily Production	(CY/day)	711	711		Assume 2 tons = 1 CY of concrete.
		(ton/day)	1,423	1,423		Provided by Scout, with 25% margin to account for uncertainty and spoiled batches
	Max Annual Production	(CY/yr)	99,463	70,804	170,266	Max concrete usage per location.
		(ton/yr)	198,925	141,608	340,533	Max concrete usage per location.

	Raw Materials	Units	Processing Rate		Source
			East	West	
Composition	Cement - 8%	(ton/hr)	26.4	26.4	Ratios of raw materials from Wanzek and Blattner. Cement composition is estimated to contain 8% cement and 2% cement supplement.
		(ton/day)	114	114	
		(ton/yr)	15,914	11,329	
	Cement Supplement - 2%	(ton/hr)	6.6	6.6	
		(ton/day)	28	28	
		(ton/yr)	3,979	2,832	
	Fly Ash (Light Aggregate) - 3%	(ton/hr)	9.9	9.9	
		(ton/day)	43	43	
		(ton/yr)	5,968	4,248	
	Rock (Heavy Aggregate) - 45%	(ton/hr)	149	149	
		(ton/day)	640	640	
		(ton/yr)	89,516	63,723	
	Sand - 37%	(ton/hr)	122.1	122.1	
		(ton/day)	526	526	
		(ton/yr)	73,602	52,395	
	Water - 5%	(ton/hr)	17	17	
		(ton/day)	71	71	
		(ton/yr)	9,946	7,080	

	Misc Parameters	Units	Location		Source
			East	West	
Storage Pile	Storage Pile Diameter	(ft)	65	65	Estimated size.
	Storage Pile Height	(ft)	10	10	Estimated size.
	Storage Pile Surface Area	(ft^2)	3472	3472	Cone shape storage area.
		(acre)	0.08	0.08	Square feet to acre conversion.
	Number of Storage Piles	(qty)	3	3	Estimated number of piles.
Misc	Wind Speed [U]	(mph)	6	6	Estimated average wind speed in Benton County.
	Moisture [M]	(%)	5	5	Average moisture content of sand and aggregate.

	Vehicle Parameters and Trip Lengths	Units	East			West		
			Sand & Aggregate Delivery	Cement Delivery	Concrete Haul-Out	Sand & Aggregate Delivery	Cement Delivery	Concrete Haul-Out
MPR	Material Processing Rate	(ton/hour)	281	26	330	281	26	330
		(ton/day)	1,209	114	1,423	1,209	114	1,423
		(ton/yr)	169,086	15,914	198,925	120,366	11,329	141,608
Truck Weight and Trip Lengths (Paved)	Truck Trips	(trips/hour)	10	1	17	10	1	17
		(trips/day)	43	3	71	43	3	71
		(trips/yr)	6,039	442	9,946	4,299	315	7,080
	Typical Trip Length [Loaded]	(feet/trip)	395	648	227	395	648	227
	Typical Trip Length [Unloaded]	(feet/trip)	479	227	648	479	227	648
	Typical Trip Length [Total]	(feet/trip)	874	874	874	874	874	874
	Truck Full Weight	(tons)	43	54	35	43	54	35
	Truck Haul Capacity	(tons)	28	36	20	28	36	20
	Truck Empty Weight	(tons/load)	15	18	15	15	18	15
	Hourly VMT [Loaded]	(mi/hr)	0.75	0.09	0.71	0.75	0.09	0.71
	Hourly VMT [Unloaded]	(mi/hr)	0.91	0.03	2.02	0.91	0.03	2.02
	Hourly VMT [Total]	(mi/hr)	1.66	0.12	2.73	1.66	0.12	2.73
	Daily VMT [Loaded]	(mi/day)	3.23	0.39	3.05	3.23	0.39	3.05
	Daily VMT [Unloaded]	(mi/day)	3.92	0.14	8.72	3.92	0.14	8.72
	Daily VMT [Total]	(mi/day)	7.15	0.52	11.77	7.15	0.52	11.77
	Annual VMT [Loaded]	(mi/yr)	452	54	427	322	39	304
	Annual VMT [Unloaded]	(mi/yr)	548	19	1,220	390	13	868
	Annual VMT [Total]	(mi/yr)	1,000	73	1,646	712	52	1,172
Loader and Trip Lengths (Unpaved)	Loader Full Weight	(ton)	22.5			22.5		
	Loader Empty Weight	(ton)	17.5			17.5		
	Loader Haul Capacity	(ton)	5.0			5.0		
	Loader Average Weight	(ton)	20.0			20.0		
	Loader Round Trip	(ft)	413			413		
		(mi)	0.078			0.078		

Horse Heaven Wind Farm, LLC
PM Emission Factors

Description of Concrete Batching	Equation	Source	Coefficients											PM Emission Factors				
			U	M	k	a	b	c	f [1]	p [2]	s [3]	sL [4]	W					
			(mph)	(%)					(%)	(days)	(%)	(g/m^2)	(ton)		(lb/ton)	(lb/VMT)	(lb/VMT)	(lb/hr-acre)
			Wind speed	Moisture content	Particle size multiplier	Exponent	Exponent	Constant	Wind speed over 12 mph	No. of wet days/yr	Silt Content	Silt Load	Vehicle Weight	Pollutant	EF	Short Term EF	Long Term EF	EF
Aggregate delivery to ground storage; Sand delivery to ground storage; Aggregate transfer to conveyor; Aggregate transfer to elevated storage; Sand transfer to elevated storage	$E = k(0.0032) \times \frac{(\frac{U}{5})^{1.3}}{(\frac{M}{2})^{1.4}}$	AP-42, 13.2.4.3 Predictive Emission Factor Equation.	6	5	0.74									PM	0.00083			
			6	5	0.35									PM_{10}	0.00039			
			6	5	0.053									$PM_{2.5}$	0.00006			
Truck mix loading [Controlled]	$E = k(0.0032) \times \frac{(U)^a}{(M)^b} + c$	AP-42, Section 11.12, Equation 11.12-1.	6	5	0.8	1.75	0.3	0.013						PM	0.04933			
			6	5	0.32	1.75	0.3	0.0052						PM_{10}	0.01973			
			6	5	0.048	1.75	0.3	0.00078						$PM_{2.5}$	0.00296			
Vehicle traffic (paved roads) [Uncontrolled]	$E = [k(sL)^{0.91} \times (W)^{1.02}](1 - \frac{P}{4N})$	AP-42 Section 13.2.1. Paved Roads.	6	5	0.11					77		12	20	PM		22.41291	21.23086	
			6	5	0.0022					77		12	20	PM_{10}		0.44826	0.42462	
			6	5	0.00054					77		12	20	$PM_{2.5}$		0.11003	0.10422	
Vehicle traffic (unpaved roads) [Uncontrolled]	$E = k(\frac{s}{12})^a \times (\frac{W}{3})^b$	AP-42 Section 13.2.2. Unpaved Roads.			4.9	0.7	0.45			77	4.8		20	PM		6.05894	4.78076	
					1.5	0.9	0.45			77	4.8		20	PM_{10}		1.54420	1.21844	
					0.15	0.9	0.45			77	4.8		20	$PM_{2.5}$		0.15442	0.12184	
Wind erosion from aggregate and sand storage piles [Uncontrolled] [5, 6]	$E = 1.7 \left(\frac{s}{1.5}\right)\left(\frac{365 - P}{235}\right)\left(\frac{f}{15}\right)\left(\frac{k}{24}\right)$	Control of Open Fugitive Dust Sources, EPA-450/3-88-008, September 1988, Page 4-17.			1				17.6	77	4.8			PM				0.32594
					0.5				17.6	77	4.8			PM_{10}				0.16297
					0.15				17.6	77	4.8			$PM_{2.5}$				0.04889

References:
[1] Unobstructed wind speed AERMET met data.
[2] Pasco Tri-Cities Airport precipitation data, 1991-2020, obtained from the National Climatic Data Center.
[3] AP-42, Table 13.2.2-1, sand and gravel processing
[4] AP-42, Table 13.2.1-3, Concrete Batching
[5] Particle size multiplier (k) for wind erosion from aggregate and sand storage piles are assumed using engineering judgements.
[6] The (k/24) factor has been added to the original equation for the conversion of TSP lb/day/acre into $PM/PM_{10}/PM_{2.5}$ lb/hour/acre.

Horse Heaven Wind Farm, LLC
Concrete Batch Plant (West) Calculations

	Source Description	Maximum Capacity	Units	Criteria Pollutants			Trace Metals									
				PM	PM_{10}	$PM_{2.5}$	Arsenic	Beryllium	Cadmium	Total Chromium	Lead	Manganese	Nickel	Total Phosphorus	Selenium	Total HAPs
Uncontrolled Emissions Calculations	Aggregate delivery to ground storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		95,484 tons/yr	(tons/total duration)	0.04	0.02	0.00										
	Sand delivery to ground storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		73,602 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Aggregate transfer to conveyor	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		95,484 tons/yr	(tons/total duration)	0.04	0.02	0.00										
	Sand transfer to conveyor	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		73,602 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Aggregate transfer to elevated storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		95,484 tons/yr	(tons/total duration)	0.04	0.02	0.00										
	Sand transfer to elevated storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		73,602 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Cement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	3.30E-02	1.65E-02	2.48E-03	5.54E-04	5.91E-06	7.72E-05	8.32E-05	2.43E-04	6.67E-02	5.81E-03	3.89E-03	0.00E+00	7.73E-02
		1,423 tons/day	(avg lb/hr) - Max Day	5.93E-03	2.96E-03	4.45E-04	2.39E-03	2.55E-05	3.33E-04	3.58E-04	1.05E-03	2.87E-01	2.50E-02	1.68E-02	0.00E+00	3.33E-01
		198,925 tons/yr	(tons/total duration)	9.95E-03	4.97E-03	7.46E-04	1.67E-04	1.78E-06	2.33E-05	2.51E-05	7.32E-05	2.01E-02	1.75E-03	1.17E-03	0.00E+00	2.33E-02
	Cement supplement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	4.95E-02	3.30E-02	4.95E-03	1.65E-02	1.49E-03	3.27E-06	2.01E-02	8.58E-03	4.22E-03	3.76E-02	5.84E-02	1.19E-03	1.48E-01
		1,423 tons/day	(avg lb/hr) - Max Day	8.89E-03	5.93E-03	8.89E-04	7.11E-02	6.43E-03	1.41E-05	8.68E-02	3.70E-02	1.82E-02	1.62E-01	2.52E-01	5.15E-03	6.39E-01
		198,925 tons/yr	(tons/total duration)	1.49E-02	9.95E-03	1.49E-03	4.97E-03	4.50E-04	9.85E-07	6.07E-03	2.59E-03	1.27E-03	1.13E-02	1.76E-02	3.60E-04	4.47E-02
	Weigh hopper loading	330 tons/hr	(lb/hr) - Max Hour	1.30	0.63	0.09										
		1,423 tons/day	(avg lb/hr) - Max Day	0.23	0.11	0.02										
		198,925 tons/yr	(tons/total duration)	0.39	0.19	0.03										
	Truck mix loading	330 tons/hr	(lb/hr) - Max Hour	52.02	14.42	2.33	4.03E-03	8.05E-05	1.13E-05	3.76E-03	1.19E-03	2.02E-02	3.93E-03	1.27E-02	8.65E-04	4.67E-02
		1,423 tons/day	(avg lb/hr) - Max Day	9.34	2.59	0.42	1.74E-02	3.47E-04	4.86E-05	1.62E-02	5.15E-03	8.71E-02	1.69E-02	5.46E-02	3.73E-03	2.01E-01
		198,925 tons/yr	(tons/total duration)	15.68	4.35	0.70	1.21E-03	2.43E-05	3.40E-06	1.13E-03	3.60E-04	6.09E-03	1.18E-03	3.82E-03	2.61E-04	1.41E-02
	Vehicle Traffic (paved roads)	5 mi/hr	(lb/hr) - Max Hour	101.10	2.02	0.50										
		19 mi/day	(avg lb/hr) - Max Day	18.16	0.36	0.09										
		2,719 mi/yr	(tons/total duration)	28.87	0.58	0.14										
	Vehicle Traffic (unpaved roads)	4.39 mi/hr	(lb/hr) - Max Hour	26.59	6.78	0.68										
		18.92 mi/hr	(avg lb/hr) - Max Day	4.78	1.22	0.12										
		2,645 mi/yr	(tons/total duration)	6.32	1.61	0.16										
	Wind erosion from aggregate and sand storage piles	0.24 total acres	(lb/hr) - Max Hour	0.078	0.039	0.012										
			(avg lb/hr) - Max Day	3.25E-03	1.62E-03	4.87E-04										
			(tons/total duration)	1.14E-01	5.69E-02	1.71E-02										
	Totals Emissions:		**(lb/hr) - Max Hour**	**181.87**	**24.27**	**3.66**	**2.11E-02**	**1.58E-03**	**9.18E-05**	**2.40E-02**	**1.00E-02**	**9.11E-02**	**4.74E-02**	**7.50E-02**	**2.06E-03**	**2.72E-01**
			(avg lb/hr) - Max Day	**32.66**	**4.35**	**0.66**	**9.09E-02**	**6.80E-03**	**3.96E-04**	**1.03E-01**	**4.32E-02**	**3.93E-01**	**2.04E-01**	**3.23E-01**	**8.88E-03**	**1.17E+00**
			(tons/total duration)	**51.61**	**6.90**	**1.07**	**6.35E-03**	**4.76E-04**	**2.77E-05**	**7.23E-03**	**3.02E-03**	**2.75E-02**	**1.43E-02**	**2.26E-02**	**6.21E-04**	**8.20E-02**
Controlled Emissions Calculations	Aggregate delivery to ground storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		95,484 tons/yr	(tons/total duration)	0.04	0.02	0.00										
	Sand delivery to ground storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		73,602 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Aggregate transfer to conveyor	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		95,484 tons/yr	(tons/total duration)	0.04	0.02	0.00										
	Sand transfer to conveyor	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		73,602 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Aggregate transfer to elevated storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		95,484 tons/yr	(tons/total duration)	0.04	0.02	0.00										
	Sand transfer to elevated storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		73,602 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Cement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	6.60E-04	3.30E-04	4.95E-05	1.40E-06	1.60E-07	1.54E-06	9.57E-06	3.60E-06	3.86E-05	1.38E-05	7.79E-06	0.00E+00	7.65E-05
		1,423 tons/day	(avg lb/hr) - Max Day	1.19E-04	5.93E-05	8.89E-06	2.51E-07	2.88E-08	6.66E-06	4.13E-05	1.55E-05	1.66E-04	5.95E-05	3.36E-05	0.00E+00	3.23E-04
		198,925 tons/yr	(tons/total duration)	1.99E-04	9.95E-05	1.49E-05	4.22E-07	4.83E-08	4.65E-07	2.88E-06	1.08E-06	1.16E-05	4.16E-06	2.35E-06	0.00E+00	2.30E-05
	Cement supplement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	9.90E-04	6.60E-04	9.90E-05	3.30E-04	2.98E-05	6.53E-08	4.03E-04	1.72E-04	8.45E-05	7.52E-04	1.17E-03	2.39E-05	2.96E-03
		1,423 tons/day	(avg lb/hr) - Max Day	1.78E-04	1.19E-04	1.78E-05	1.42E-03	1.29E-04	2.82E-07	1.74E-03	7.40E-04	3.64E-04	3.24E-03	5.04E-03	1.03E-04	1.28E-02
		198,925 tons/yr	(tons/total duration)	2.98E-04	1.99E-04	2.98E-05	9.95E-05	8.99E-06	1.97E-08	1.21E-04	5.17E-05	2.55E-05	2.27E-04	3.52E-04	7.20E-06	8.93E-04
	Weigh hopper loading	330 tons/hr	(lb/hr) - Max Hour	1.30	0.63	0.09										
		1,423 tons/day	(avg lb/hr) - Max Day	0.23	0.11	0.02										
		198,925 tons/yr	(tons/total duration)	0.39	0.19	0.03										
	Truck mix loading	330 tons/hr	(lb/hr) - Max Hour	2.30	0.92	0.14	1.99E-04	3.43E-05	2.99E-06	1.35E-03	5.05E-04	6.86E-03	1.58E-02	4.06E-03	3.73E-05	2.88E-02
		1,423 tons/day	(avg lb/hr) - Max Day	0.41	0.16	0.02	8.56E-04	1.48E-04	1.29E-05	5.83E-03	2.18E-03	2.96E-02	6.80E-02	1.75E-02	1.61E-04	1.24E-01
		198,925 tons/yr	(tons/total duration)	0.69	0.28	0.04	5.99E-05	1.03E-05	9.01E-07	4.08E-04	1.52E-04	2.07E-03	4.75E-03	1.22E-03	1.12E-05	8.69E-03
	Vehicle Traffic (paved roads)	5 mi/hr	(lb/hr) - Max Hour	20.22	2.02	0.50										
		19 mi/day	(avg lb/hr) - Max Day	3.63	0.07	0.018										
		2,719 mi/yr	(tons/total duration)	5.77	0.58	0.14										
	Vehicle Traffic (unpaved roads)	4.39 mi/hr	(lb/hr) - Max Hour	5.32	1.36	0.14										
		18.92 mi/hr	(avg lb/hr) - Max Day	0.96	0.24	0.02										
		2,645 mi/yr	(tons/total duration)	1.26	0.32	0.03										
	Wind erosion from aggregate and sand storage piles	0.24 total acres	(lb/hr) - Max Hour	0.023	0.012	0.004										
			(avg lb/hr) - Max Day	9.74E-04	4.87E-04	1.46E-04										
			(tons/total duration)	3.41E-02	1.71E-02	5.12E-03										
	Totals Emissions:		**(lb/hr) - Max Hour**	**29.86**	**5.27**	**0.92**	**5.30E-04**	**6.43E-05**	**4.60E-06**	**1.77E-03**	**6.80E-04**	**6.99E-03**	**1.65E-02**	**5.23E-03**	**6.12E-05**	**3.19E-02**
			(avg lb/hr) - Max Day	**5.36**	**0.65**	**0.09**	**2.28E-03**	**2.77E-04**	**1.98E-05**	**7.61E-03**	**2.93E-03**	**3.01E-02**	**7.13E-02**	**2.26E-02**	**2.64E-04**	**1.37E-01**
			(tons/total duration)	**8.37**	**1.48**	**0.26**	**1.60E-04**	**1.94E-05**	**1.39E-06**	**5.32E-04**	**2.05E-04**	**2.11E-03**	**4.99E-03**	**1.58E-03**	**1.84E-05**	**9.60E-03**

Emission Factors

Emission Factor Source Description	Emission Control Efficiency	Units	PM	PM_{10}	$PM_{2.5}$	Arsenic	Beryllium	Cadmium	Total Chromium	Lead	Manganese	Nickel	Total Phosphorus	Selenium	Total HAPs
Aggregate delivery to ground storage[1]	0%	(lb/ton aggregate)	0.00083	0.00039	0.00006										
Sand delivery to ground storage[1]	0%	(lb/ton sand)	0.00083	0.00039	0.00006										
Aggregate transfer to conveyor[1]	0%	(lb/ton aggregate)	0.00083	0.00039	0.00006										
Sand transfer to conveyor[1]	0%	(lb/ton sand)	0.00083	0.00039	0.00006										
Aggregate transfer to elevated storage[1]	0%	(lb/ton aggregate)	0.00083	0.00039	0.00006										
Sand transfer to elevated storage[1]	0%	(lb/ton sand)	0.00083	0.00039	0.00006										
Cement delivery to silo[2, 4, 5, 6]	0%	(lb/ton concrete)	1.00E-04	5.00E-05	7.50E-06	1.68E-06	1.79E-08	2.34E-07	2.52E-07	7.36E-07	2.02E-04	1.76E-05	1.18E-05	ND	
	98%	(lb/ton concrete)	2.00E-06	1.00E-06	1.50E-07	4.24E-09	4.86E-10	4.68E-09	2.90E-08	1.09E-08	1.17E-07	4.18E-08	2.36E-08	ND	
Cement supplement delivery to silo[2, 4, 5, 6]	0%	(lb/ton concrete)	1.50E-04	1.00E-04	1.50E-05	5.00E-05	4.52E-06	9.90E-09	6.10E-05	2.60E-05	1.28E-05	1.14E-04	1.77E-04	3.62E-06	
	98%	(lb/ton concrete)	3.00E-06	2.00E-06	3.00E-07	1.00E-06	9.04E-08	1.98E-10	1.22E-06	5.20E-07	2.56E-07	2.28E-06	3.54E-06	7.24E-08	
Weigh hopper loading[2, 4, 5]	0%	(lb/ton concrete)	0.00395	0.00190	0.00029										
Truck mix loading[3, 6, 7]	0%	(lb/ton concrete)	0.15764	0.04371	0.00705	1.22E-05	2.44E-07	3.42E-08	1.14E-05	3.62E-06	6.12E-05	1.19E-05	3.84E-05	2.62E-06	
	94%	(lb/ton concrete)	0.00696	0.00278	0.00042	6.02E-07	1.04E-07	9.06E-09	4.10E-06	1.53E-06	2.08E-05	4.78E-05	1.23E-05	1.13E-07	
Vehicle traffic (paved roads)[8, 9, 10]	0%	(lb/VMT)	22.413	0.448	0.110										
[Short-Term Emission Factor]	80%	(lb/VMT)	4.483	0.090	0.022										
Vehicle traffic (paved roads)[8, 9, 10]	0%	(lb/VMT)	21.231	0.425	0.104										
[Annual Emission Factor]	80%	(lb/VMT)	4.246	0.085	0.021										
Vehicle traffic (unpaved roads)[8, 9, 10]	0%	(lb/VMT)	6.059	1.544	0.154										
[Short-Term Emission Factor]	80%	(lb/VMT)	1.212	0.309	0.031										
Vehicle traffic (unpaved roads)[8, 9, 10]	0%	(lb/VMT)	4.781	1.218	0.122										
[Annual Emission Factor]	80%	(lb/VMT)	0.956	0.244	0.024										
Wind erosion from aggregate and sand storage piles[8, 10]	0%	(lb/hr-acre)	0.326	0.163	0.049										
	70%	(lb/hr-acre)	0.098	0.049	0.015										

References:

[1] Uncontrolled emission factors for PM, PM_{10}, and $PM_{2.5}$ are based on the Predictive Emission Factor Equation in Section 13.2.4.3, AP-42 Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources.

[2] Uncontrolled emission factors for PM and PM_{10} are from Table 11.12-5. Controlled emissions are based on the indicated control efficiency.

[3] For truck mix loading, the emissions of PM, PM_{10}, and $PM_{2.5}$ are calculated by multiplying the emission factor calculated using Equation 11.12-2 by a factor of 0.282 to convert from emissions per ton of cement and cement supplement to emissions per yard of concrete.

[4] Assuming 2 tons of concrete is approximately equivalent to 1 CY for conversion.

[5] Uncontrolled emission factors for $PM_{2.5}$ are assumed to be 16% of the PM_{10} emission factor, based on the ratio of uncontrolled $PM_{2.5}$ to PM_{10} presented in Table 11.12-3. Controlled emissions are based on the indicated control efficiency.

[6] Emission factors for trace metals are from Table 11.12-8. In cases where "ND" was reported for either the controlled or the uncontrolled value, the corresponding missing value was calculated using the unit's control device efficiency.

[7] Uncontrolled and controlled emission factors for PM, PM_{10}, and $PM_{2.5}$ are computed from Table 11.12-3. Control efficiency calculated by taking the worst case scenario when dividing the calculated controlled emissions by the uncontrolled emission factors in Table 11.12-3.

[8] Emission factors derived from equations in tab "PM Emission Factors" for certain operating scenarios with varying conditions.

[9] Short term PM emission factors are used to calculate hourly and daily emissions while annual emission factors are used to calculate yearly emissions.

[10] WRAP Fugitive Dust Handbook

Horse Heaven Wind Farm, LLC
Concrete Batch Plant (East) Calculations

	Source Description	Maximum Capacity	Units	Criteria Pollutants			Trace Metals									
				PM	PM_{10}	$PM_{2.5}$	Arsenic	Beryllium	Cadmium	Total Chromium	Lead	Manganese	Nickel	Total Phosphorus	Selenium	Total HAPs
Uncontrolled Emissions Calculations	Aggregate delivery to ground storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		67,972 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Sand delivery to ground storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		52,395 tons/yr	(tons/total duration)	0.02	0.01	0.00										
	Aggregate transfer to conveyor	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		67,972 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Sand transfer to conveyor	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		52,395 tons/yr	(tons/total duration)	0.02	0.01	0.00										
	Aggregate transfer to elevated storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		67,972 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Sand transfer to elevated storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		52,395 tons/yr	(tons/total duration)	0.02	0.01	0.00										
	Cement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	3.30E-02	1.65E-02	2.48E-03	5.54E-04	5.91E-06	7.72E-05	8.32E-05	2.43E-04	6.67E-02	5.81E-03	3.89E-03	0.00E+00	7.73E-02
		1,423 tons/day	(avg lb/hr) - Max Day	5.93E-03	2.96E-03	4.45E-04	2.39E-03	2.55E-05	3.33E-04	3.58E-04	1.05E-03	2.87E-01	2.50E-02	1.68E-02	0.00E+00	3.33E-01
		141,608 tons/yr	(tons/total duration)	7.08E-03	3.54E-03	5.31E-04	1.19E-04	1.27E-06	1.66E-05	1.78E-05	5.21E-05	1.43E-02	1.25E-03	8.35E-04	0.00E+00	1.66E-02
	Cement supplement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	4.95E-02	3.30E-02	4.95E-03	1.65E-02	1.49E-03	3.27E-06	2.01E-02	8.58E-03	4.22E-03	3.76E-02	5.84E-02	1.19E-03	1.48E-01
		1,423 tons/day	(avg lb/hr) - Max Day	8.89E-03	5.93E-03	8.89E-04	7.11E-02	6.43E-03	1.41E-05	8.68E-02	3.70E-02	1.82E-02	1.62E-01	2.52E-01	5.15E-03	6.39E-01
		141,608 tons/yr	(tons/total duration)	1.06E-02	7.08E-03	1.06E-03	3.54E-03	3.20E-04	7.01E-07	4.32E-03	1.84E-03	9.06E-04	8.07E-03	1.25E-02	2.56E-04	3.18E-02
	Weigh hopper loading	330 tons/hr	(lb/hr) - Max Hour	1.30	0.63	0.09										
		1,423 tons/day	(avg lb/hr) - Max Day	0.23	0.11	0.02										
		141,608 tons/yr	(tons/total duration)	0.28	0.13	0.02										
	Truck mix loading	330 tons/hr	(lb/hr) - Max Hour	52.02	14.42	2.33	4.03E-03	8.05E-05	1.13E-05	3.76E-03	1.19E-03	2.02E-02	3.93E-03	1.27E-02	8.65E-04	4.67E-02
		1,423 tons/day	(avg lb/hr) - Max Day	9.34	2.59	0.42	1.74E-02	3.47E-04	4.86E-05	1.62E-02	5.15E-03	8.71E-02	1.69E-02	5.46E-02	3.73E-03	2.01E-01
		141,608 tons/yr	(tons/total duration)	11.16	3.09	0.50	8.64E-04	1.73E-05	2.42E-06	8.07E-04	2.56E-04	4.33E-03	8.43E-04	2.72E-03	1.86E-04	1.00E-02
	Vehicle Traffic (paved roads)	5 mi/hr	(lb/hr) - Max Hour	101.10	2.02	0.50										
		19 mi/day	(avg lb/hr) - Max Day	18.16	0.36	0.09										
		1,936 mi/yr	(tons/total duration)	20.55	0.41	0.10										
	Vehicle Traffic (unpaved roads)	4.39 mi/hr	(lb/hr) - Max Hour	26.59	6.78	0.68										
		18.92 mi/hr	(avg lb/hr) - Max Day	4.78	1.22	0.12										
		2,645 mi/yr	(tons/total duration)	6.32	1.61	0.16										
	Wind erosion from aggregate and sand storage piles	0.24 total acres	(lb/hr) - Max Hour	0.078	0.039	0.012										
			(avg lb/hr) - Max Day	3.25E-03	1.62E-03	4.87E-04										
			(tons/total duration)	1.14E-01	5.69E-02	1.71E-02										
	Totals Emissions:		**(lb/hr) - Max Hour**	**181.87**	**24.27**	**3.66**	**2.11E-02**	**1.58E-03**	**9.18E-05**	**2.40E-02**	**1.00E-02**	**9.11E-02**	**4.74E-02**	**7.50E-02**	**2.06E-03**	**2.72E-01**
			(avg lb/hr) - Max Day	**32.66**	**4.35**	**0.66**	**9.09E-02**	**6.80E-03**	**3.96E-04**	**1.03E-01**	**4.32E-02**	**3.93E-01**	**2.04E-01**	**3.23E-01**	**8.88E-03**	**1.17E+00**
			(tons/total duration)	**38.59**	**5.39**	**0.81**	**4.52E-03**	**3.39E-04**	**1.97E-05**	**5.14E-03**	**2.15E-03**	**1.95E-02**	**1.02E-02**	**1.61E-02**	**4.42E-04**	**5.84E-02**
Controlled Emissions Calculations	Aggregate delivery to ground storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		67,972 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Sand delivery to ground storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		52,395 tons/yr	(tons/total duration)	0.02	0.01	0.00										
	Aggregate transfer to conveyor	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		67,972 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Sand transfer to conveyor	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		52,395 tons/yr	(tons/total duration)	0.02	0.01	0.00										
	Aggregate transfer to elevated storage	158 tons/hr	(lb/hr) - Max Hour	0.13	0.06	0.01										
		683 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		67,972 tons/yr	(tons/total duration)	0.03	0.01	0.00										
	Sand transfer to elevated storage	122 tons/hr	(lb/hr) - Max Hour	0.10	0.05	0.01										
		526 tons/day	(avg lb/hr) - Max Day	0.02	0.01	0.00										
		52,395 tons/yr	(tons/total duration)	0.02	0.01	0.00										
	Cement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	6.60E-04	3.30E-04	4.95E-05	1.40E-06	1.60E-07	1.54E-06	9.57E-06	3.60E-06	3.86E-05	1.38E-05	7.79E-06	0.00E+00	7.65E-05
		1,423 tons/day	(avg lb/hr) - Max Day	1.19E-04	5.93E-05	8.89E-06	2.51E-07	2.88E-08	6.66E-06	4.13E-05	1.55E-05	1.66E-04	5.95E-05	3.36E-05	0.00E+00	3.23E-04
		141,608 tons/yr	(tons/total duration)	1.42E-04	7.08E-05	1.06E-05	3.00E-07	3.44E-08	3.31E-07	2.05E-06	7.72E-07	8.28E-06	2.96E-06	1.67E-06	0.00E+00	1.64E-05
	Cement supplement delivery to silo	330 tons/hr	(lb/hr) - Max Hour	9.90E-04	6.60E-04	9.90E-05	3.30E-04	2.98E-05	6.53E-08	4.03E-04	1.72E-04	8.45E-05	7.52E-04	1.17E-03	2.39E-05	2.96E-03
		1,423 tons/day	(avg lb/hr) - Max Day	1.78E-04	1.19E-04	1.78E-05	1.42E-03	1.29E-04	2.82E-07	1.74E-03	7.40E-04	3.64E-04	3.24E-03	5.04E-03	1.03E-04	1.28E-02
		141,608 tons/yr	(tons/total duration)	2.12E-04	1.42E-04	2.12E-05	7.08E-05	6.40E-06	1.40E-08	8.64E-05	3.68E-05	1.81E-05	1.61E-04	2.51E-04	5.13E-06	6.36E-04
	Weigh hopper loading	330 tons/hr	(lb/hr) - Max Hour	1.30	0.63	0.09										
		1,423 tons/day	(avg lb/hr) - Max Day	0.234	0.113	0.017										
		141,608 tons/yr	(tons/total duration)	0.280	0.135	0.020										
	Truck mix loading	330 tons/hr	(lb/hr) - Max Hour	2.30	0.92	0.14	1.99E-04	3.43E-05	2.99E-06	1.35E-03	5.05E-04	6.86E-03	1.58E-02	4.06E-03	3.73E-05	2.88E-02
		1,423 tons/day	(avg lb/hr) - Max Day	0.41	0.16	0.02	8.56E-04	1.48E-04	1.29E-05	5.83E-03	2.18E-03	2.96E-02	6.80E-02	1.75E-02	1.61E-04	1.24E-01
		141,608 tons/yr	(tons/total duration)	0.49	0.20	0.03	4.26E-05	7.36E-06	6.41E-07	2.90E-04	1.08E-04	1.47E-03	3.38E-03	8.71E-04	8.00E-06	6.19E-03
	Vehicle Traffic (paved roads)	5 mi/hr	(lb/hr) - Max Hour	20.22	2.02	0.50										
		19 mi/day	(avg lb/hr) - Max Day	3.63	0.07	0.018										
		1,936 mi/yr	(tons/total duration)	4.11	0.41	0.10										
	Vehicle Traffic (unpaved roads)	4.39 mi/hr	(lb/hr) - Max Hour	5.32	1.36	0.14										
		18.92 mi/hr	(avg lb/hr) - Max Day	0.96	0.24	0.02										
		2,645 mi/yr	(tons/total duration)	1.26	0.32	0.03										
	Wind erosion from aggregate and sand storage piles	0.24 total acres	(lb/hr) - Max Hour	0.023	0.012	0.004										
			(avg lb/hr) - Max Day	9.74E-04	4.87E-04	1.46E-04										
			(tons/total duration)	3.41E-02	1.71E-02	5.12E-03										
	Totals Emissions:		**(lb/hr) - Max Hour**	**29.86**	**5.27**	**0.92**	**5.30E-04**	**6.43E-05**	**4.60E-06**	**1.77E-03**	**6.80E-04**	**6.99E-03**	**1.65E-02**	**5.23E-03**	**6.12E-05**	**3.19E-02**
			(avg lb/hr) - Max Day	**5.36**	**0.65**	**0.09**	**2.28E-03**	**2.77E-04**	**1.98E-05**	**7.61E-03**	**2.93E-03**	**3.01E-02**	**7.13E-02**	**2.26E-02**	**2.64E-04**	**1.37E-01**
			(tons/total duration)	**6.33**	**1.15**	**0.20**	**1.14E-04**	**1.38E-05**	**9.87E-07**	**3.79E-04**	**1.46E-04**	**1.50E-03**	**3.55E-03**	**1.12E-03**	**1.31E-05**	**6.84E-03**

Emission Factors

Emission Factor Source Description	Emission Control Efficiency	Units	PM	PM_{10}	$PM_{2.5}$	Arsenic	Beryllium	Cadmium	Total Chromium	Lead	Manganese	Nickel	Total Phosphorus	Selenium	Total HAPs
Aggregate delivery to ground storage[1]	0%	(lb/ton aggregate)	0.00083	0.00039	0.00006										
Sand delivery to ground storage[1]	0%	(lb/ton sand)	0.00083	0.00039	0.00006										
Aggregate transfer to conveyor[1]	0%	(lb/ton aggregate)	0.00083	0.00039	0.00006										
Sand transfer to conveyor[1]	0%	(lb/ton sand)	0.00083	0.00039	0.00006										
Aggregate transfer to elevated storage[1]	0%	(lb/ton aggregate)	0.00083	0.00039	0.00006										
Sand transfer to elevated storage[1]	0%	(lb/ton sand)	0.00083	0.00039	0.00006										
Cement delivery to silo[2, 4, 5, 6]	0%	(lb/ton concrete)	1.00E-04	5.00E-05	7.50E-06	1.68E-06	1.79E-08	2.34E-07	2.52E-07	7.36E-07	2.02E-04	1.76E-05	1.18E-05	ND	
	98%	(lb/ton concrete)	2.00E-06	1.00E-06	1.50E-07	4.24E-09	4.86E-10	4.68E-09	2.90E-08	1.09E-08	1.17E-07	4.18E-08	2.36E-08	ND	
Cement supplement delivery to silo[2, 4, 5, 6]	0%	(lb/ton concrete)	1.50E-04	1.00E-04	1.50E-05	5.00E-05	4.52E-06	9.90E-09	6.10E-05	2.60E-05	1.28E-05	1.14E-04	1.77E-04	3.62E-06	
	98%	(lb/ton concrete)	3.00E-06	2.00E-06	3.00E-07	1.00E-06	9.04E-08	1.98E-10	1.22E-06	5.20E-07	2.56E-07	2.28E-06	3.54E-06	7.24E-08	
Weigh hopper loading[2, 4, 5]	0%	(lb/ton concrete)	0.00395	0.00190	0.00029										
Truck mix loading[3, 6, 7]	0%	(lb/ton concrete)	0.15764	0.04371	0.00705	1.22E-05	2.44E-07	3.42E-08	1.14E-05	3.62E-06	6.12E-05	1.19E-05	3.84E-05	2.62E-06	
	94%	(lb/ton concrete)	0.00696	0.00278	0.00042	6.02E-07	1.04E-07	9.06E-09	4.10E-06	1.53E-06	2.08E-05	4.78E-05	1.23E-05	1.13E-07	
Vehicle traffic (paved roads)[8, 9, 10]	0%	(lb/VMT)	22.413	0.448	0.110										
[Short-Term Emission Factor]	80%	(lb/VMT)	4.483	0.090	0.022										
Vehicle traffic (paved roads)[8, 9, 10]	0%	(lb/VMT)	21.231	0.425	0.104										
[Annual Emission Factor]	80%	(lb/VMT)	4.246	0.085	0.021										
Vehicle traffic (unpaved roads)[8, 9, 10]	0%	(lb/VMT)	6.059	1.544	0.154										
[Short-Term Emission Factor]	80%	(lb/VMT)	1.212	0.309	0.031										
Vehicle traffic (unpaved roads)[8, 9, 10]	0%	(lb/VMT)	4.781	1.218	0.122										
[Annual Emission Factor]	80%	(lb/VMT)	0.956	0.244	0.024										
Wind erosion from aggregate and sand storage piles[8, 10]	0%	(lb/hr-acre)	0.326	0.163	0.049										
	70%	(lb/hr-acre)	0.098	0.049	0.015										

References:

[1] Uncontrolled emission factors for PM, PM_{10}, and $PM_{2.5}$ are based on the Predictive Emission Factor Equation in Section 13.2.4.3, AP-42 Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources.

[2] Uncontrolled emission factors for PM and PM_{10} are from Table 11.12-5. Controlled emissions are based on the indicated control efficiency.

[3] For truck mix loading, the emissions of PM, PM_{10}, and $PM_{2.5}$ are calculated by multiplying the emission factor calculated using Equation 11.12-2 by a factor of 0.282 to convert from emissions per ton of cement and cement supplement to emissions per yard of concrete.

[4] Assuming 2 tons of concrete is approximately equivalent to 1 CY for conversion.

[5] Uncontrolled emission factors for $PM_{2.5}$ are assumed to be 16% of the PM_{10} emission factor, based on the ratio of uncontrolled $PM_{2.5}$ to PM_{10} presented in Table 11.12-3. Controlled emissions are based on the indicated control efficiency.

[6] Emission factors for trace metals are from Table 11.12-8. In cases where "ND" was reported for either the controlled or the uncontrolled value, the corresponding missing value was calculated using the unit's control device efficiency.

[7] Uncontrolled and controlled emission factors for PM, PM_{10}, and $PM_{2.5}$ are computed from Table 11.12-3. Control efficiency calculated by taking the worst case scenario when dividing the calculated controlled emissions by the uncontrolled emission factors in Table 11.12-3.

[8] Emission factors derived from equations in tab "PM Emission Factors" for certain operating scenarios with varying conditions.

[9] Short term PM emission factors are used to calculate hourly and daily emissions while annual emission factors are used to calculate yearly emissions.

[10] WRAP Fugitive Dust Handbook

Horse Heaven Wind Farm, LLC
Engine Parameters

Parameters	Units	CBP Engines	Load Bank Engines
Total Quantity	(qty)	2	6
Quantity Located at HHW	(qty)	1	3
Quantity Located at HHE	(qty)	1	3
Engine Fuel Type		Diesel	Diesel
Engine Make		TBD	TBD
Engine Model		TBD	TBD
Rated Power	(kW)	500	2,000
Rated Output	(hp)	670	2680
Diesel Heat Content	(Btu/gal)	138,000	138,000
Engine Heat Input	(MMBtu/hr)	4.69	18.76
Max. Fuel Consumption	(gal/hr)	34.0	135.9
Operating Hours Each	(hrs)	500	500

Note:
Hourly fuel consumption is based on default brake-specific fuel consumption of 7,000 Btu/hp-hr, from AP-42 Table 3.4-1.

		EF	CBP Engines Emissions				Load Bank Engines Emissions			
			Single		Combined (1)		Single		Combined (3)	
		(lb/hp-hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Criteria Pollutants [1,5]	CO	5.50E-03	3.69	0.92	3.69	0.92	14.74	3.69	44.22	11.06
	NOx	2.40E-02	16.08	4.02	16.08	4.02	64.32	16.08	192.96	48.24
	PM	7.00E-04	0.47	0.12	0.47	0.12	1.88	0.47	5.63	1.41
	PM_{10}	7.00E-04	0.47	0.12	0.47	0.12	1.88	0.47	5.63	1.41
	$PM_{2.5}$	7.00E-04	0.47	0.12	0.47	0.12	1.88	0.47	5.63	1.41
	SO_2	1.21E-05	0.01	0.00	0.01	0.00	0.03	0.01	0.10	0.02
	VOC	7.05E-04	0.47	0.12	0.47	0.12	1.89	0.47	5.67	1.42
	Lead	0.00E+00	-	-	-	-	-	-	-	-
		(lb/MMBtu)	(lb/hr)	(lb/yr)	(lb/hr)	(lb/yr)	(lb/hr)	(lb/yr)	(lb/hr)	(lb/yr)
HAPs [3]	Acetaldehyde	2.52E-05	1.18E-04	5.18E-04	1.18E-04	5.18E-04	4.73E-04	2.07E-03	1.42E-03	6.21E-03
	Acrolein	7.88E-06	3.70E-05	1.62E-04	3.70E-05	1.62E-04	1.48E-04	6.47E-04	4.43E-04	1.94E-03
	Benzene	7.76E-04	3.64E-03	1.59E-02	3.64E-03	1.59E-02	1.46E-02	6.38E-02	4.37E-02	1.91E-01
	Formaldehyde	7.89E-05	3.70E-04	1.62E-03	3.70E-04	1.62E-03	1.48E-03	6.48E-03	4.44E-03	1.94E-02
	Naphthalene	1.30E-04	6.10E-04	2.67E-03	6.10E-04	2.67E-03	2.44E-03	1.07E-02	7.32E-03	3.20E-02
	Toluene	2.81E-04	1.32E-03	5.77E-03	1.32E-03	5.77E-03	5.27E-03	2.31E-02	1.58E-02	6.93E-02
	Xylenes	1.93E-04	9.05E-04	3.96E-03	9.05E-04	3.96E-03	3.62E-03	1.59E-02	1.09E-02	4.76E-02
	Total HAPs		7.00E-03	3.06E-02	7.00E-03	3.06E-02	2.80E-02	1.23E-01	8.40E-02	3.68E-01
PAHs [4]	Acenaphthene	4.68E-06	2.19E-05	9.61E-05	2.19E-05	9.61E-05	8.78E-05	3.85E-04	2.63E-04	1.15E-03
	Acenaphthylene	9.23E-06	4.33E-05	1.90E-04	4.33E-05	1.90E-04	1.73E-04	7.58E-04	5.19E-04	2.28E-03
	Anthracene	1.23E-06	5.77E-06	2.53E-05	5.77E-06	2.53E-05	2.31E-05	1.01E-04	6.92E-05	3.03E-04
	Benz(a)anthracene	6.22E-07	2.92E-06	1.28E-05	2.92E-06	1.28E-05	1.17E-05	5.11E-05	3.50E-05	1.53E-04
	Benzo(a)pyrene	2.57E-07	1.21E-06	5.28E-06	1.21E-06	5.28E-06	4.82E-06	2.11E-05	1.45E-05	6.34E-05
	Benzo(b)fluoranthene	1.11E-06	5.21E-06	2.28E-05	5.21E-06	2.28E-05	2.08E-05	9.12E-05	6.25E-05	2.74E-04
	Benzo(g,h,l)perylene	5.56E-07	2.61E-06	1.14E-05	2.61E-06	1.14E-05	1.04E-05	4.57E-05	3.13E-05	1.37E-04
	Benzo(k)fluoranthene	2.18E-07	1.02E-06	4.48E-06	1.02E-06	4.48E-06	4.09E-06	1.79E-05	1.23E-05	5.37E-05
	Chrysene	1.53E-06	7.18E-06	3.14E-05	7.18E-06	3.14E-05	2.87E-05	1.26E-04	8.61E-05	3.77E-04
	Dibenz(a,h)anthracene	3.46E-07	1.62E-06	7.11E-06	1.62E-06	7.11E-06	6.49E-06	2.84E-05	1.95E-05	8.53E-05
	Fluoranthene	4.03E-06	1.89E-05	8.28E-05	1.89E-05	8.28E-05	7.56E-05	3.31E-04	2.27E-04	9.93E-04
	Fluorene	1.28E-05	6.00E-05	2.63E-04	6.00E-05	2.63E-04	2.40E-04	1.05E-03	7.20E-04	3.16E-03
	Indeno(1,2,3,-d)pyrene	4.14E-07	1.94E-06	8.50E-06	1.94E-06	8.50E-06	7.77E-06	3.40E-05	2.33E-05	1.02E-04
	Naphthalene	1.30E-04	6.10E-04	2.67E-03	6.10E-04	2.67E-03	2.44E-03	1.07E-02	7.32E-03	3.20E-02
	Phenanthrene	4.08E-05	1.91E-04	8.38E-04	1.91E-04	8.38E-04	7.65E-04	3.35E-03	2.30E-03	1.01E-02
	Pyrene	3.71E-06	1.74E-05	7.62E-05	1.74E-05	7.62E-05	6.96E-05	3.05E-04	2.09E-04	9.15E-04
	Total PAH	2.12E-04	9.94E-04	4.35E-03	9.94E-04	4.35E-03	3.98E-03	1.74E-02	1.19E-02	5.23E-02

References:

[1] Parameters copied from the "Engine Parameters" tab.

Parameters	Units	CBP	Load Bank
Rated Output	(hp)	670	2,680
Engine Heat Input	(MMBtu/hr)	4.69	18.76
Operating Hours Each	(hrs)	500	500

[2] AP 42 Section 3.4 Table 3.4-1 for criteria pollutants.

[3] AP 42 Section 3.4 Table 3.4-3 for hazardous air pollutants (HAP).

[4] AP 42 Section 3.4 Table 3.4-4 for polycyclic aromatic hydrocarbons (PAH)

[5] Assume the sulfur content is 0.15%.

		EF	CBP Engines Emissions				Load Bank Engines Emissions			
			Single		Combined (1)		Single		Combined (3)	
		(lb/hp-hr)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
Criteria Pollutants [1][5]	CO	5.50E-03	3.69	0.92	3.69	0.92	14.74	3.69	44.22	11.06
	NOx	2.40E-02	16.08	4.02	16.08	4.02	64.32	16.08	192.96	48.24
	PM	7.00E-04	0.47	0.12	0.47	0.12	1.88	0.47	5.63	1.41
	PM_{10}	7.00E-04	0.47	0.12	0.47	0.12	1.88	0.47	5.63	1.41
	$PM_{2.5}$	7.00E-04	0.47	0.12	0.47	0.12	1.88	0.47	5.63	1.41
	SO_2	1.21E-05	0.01	0.00	0.01	0.00	0.03	0.01	0.10	0.02
	VOC	7.05E-04	0.47	0.12	0.47	0.12	1.89	0.47	5.67	1.42
	Lead	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		(lb/MMBtu)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
HAPs [2]	Acetaldehyde	2.52E-05	1.18E-04	5.18E-04	1.18E-04	5.18E-04	4.73E-04	2.07E-03	1.42E-03	6.21E-03
	Acrolein	7.88E-06	3.70E-05	1.62E-04	3.70E-05	1.62E-04	1.48E-04	6.47E-04	4.43E-04	1.94E-03
	Benzene	7.76E-04	3.64E-03	1.59E-02	3.64E-03	1.59E-02	1.46E-02	6.38E-02	4.37E-02	1.91E-01
	Formaldehyde	7.89E-05	3.70E-04	1.62E-03	3.70E-04	1.62E-03	1.48E-03	6.48E-03	4.44E-03	1.94E-02
	Naphthalene	1.30E-04	6.10E-04	2.67E-03	6.10E-04	2.67E-03	2.44E-03	1.07E-02	7.32E-03	3.20E-02
	Toluene	2.81E-04	1.32E-03	5.77E-03	1.32E-03	5.77E-03	5.27E-03	2.31E-02	1.58E-02	6.93E-02
	Xylenes	1.93E-04	9.05E-04	3.96E-03	9.05E-04	3.96E-03	3.62E-03	1.59E-02	1.09E-02	4.76E-02
	Total HAPs		7.00E-03	3.06E-02	7.00E-03	3.06E-02	2.80E-02	1.23E-01	8.40E-02	3.68E-01
PAHs [4]	Acenaphthene	4.68E-06	2.19E-05	9.61E-05	2.19E-05	9.61E-05	8.78E-05	3.85E-04	2.63E-04	1.15E-03
	Acenaphthylene	9.23E-06	4.33E-05	1.90E-04	4.33E-05	1.90E-04	1.73E-04	7.58E-04	5.19E-04	2.28E-03
	Anthracene	1.23E-06	5.77E-06	2.53E-05	5.77E-06	2.53E-05	2.31E-05	1.01E-04	6.92E-05	3.03E-04
	Benz(a)anthracene	6.22E-07	2.92E-06	1.28E-05	2.92E-06	1.28E-05	1.17E-05	5.11E-05	3.50E-05	1.53E-04
	Benzo(a)pyrene	2.57E-07	1.21E-06	5.28E-06	1.21E-06	5.28E-06	4.82E-06	2.11E-05	1.45E-05	6.34E-05
	Benzo(b)fluoranthene	1.11E-06	5.21E-06	2.28E-05	5.21E-06	2.28E-05	2.08E-05	9.12E-05	6.25E-05	2.74E-04
	Benzo(g,h,l)perylene	5.56E-07	2.61E-06	1.14E-05	2.61E-06	1.14E-05	1.04E-05	4.57E-05	3.13E-05	1.37E-04
	Benzo(k)fluoranthene	2.18E-07	1.02E-06	4.48E-06	1.02E-06	4.48E-06	4.09E-06	1.79E-05	1.23E-05	5.37E-05
	Chrysene	1.53E-06	7.18E-06	3.14E-05	7.18E-06	3.14E-05	2.87E-05	1.26E-04	8.61E-05	3.77E-04
	Dibenz(a,h)anthracene	3.46E-07	1.62E-06	7.11E-06	1.62E-06	7.11E-06	6.49E-06	2.84E-05	1.95E-05	8.53E-05
	Fluoranthene	4.03E-06	1.89E-05	8.28E-05	1.89E-05	8.28E-05	7.56E-05	3.31E-04	2.27E-04	9.93E-04
	Fluorene	1.28E-05	6.00E-05	2.63E-04	6.00E-05	2.63E-04	2.40E-04	1.05E-03	7.20E-04	3.16E-03
	Indeno(1,2,3,-d)pyrene	4.14E-07	1.94E-06	8.50E-06	1.94E-06	8.50E-06	7.77E-06	3.40E-05	2.33E-05	1.02E-04
	Naphthalene	1.30E-04	6.10E-04	2.67E-03	6.10E-04	2.67E-03	2.44E-03	1.07E-02	7.32E-03	3.20E-02
	Phenanthrene	4.08E-05	1.91E-04	8.38E-04	1.91E-04	8.38E-04	7.65E-04	3.35E-03	2.30E-03	1.01E-02
	Pyrene	3.71E-06	1.74E-05	7.62E-05	1.74E-05	7.62E-05	6.96E-05	3.05E-04	2.09E-04	9.15E-04
	Total PAH	2.12E-04	9.94E-04	4.35E-03	9.94E-04	4.35E-03	3.98E-03	1.74E-02	1.19E-02	5.23E-02

References:

[1] Parameters copied from the "Engine Parameters" tab.

Parameters	Units	CBP	Load Bank
Rated Output	(hp)	670	2,680
Engine Heat Input	(MMBtu/hr)	4.69	18.76
Operating Hours Each	(hrs)	500	500

[2] AP 42 Section 3.4 Table 3.4-1 for criteria pollutants.

[3] AP 42 Section 3.4 Table 3.4-3 for hazardous air pollutants (HAP).

[4] AP 42 Section 3.4 Table 3.4-4 for polycyclic aromatic hydrocarbons (PAH)

[5] Assume the sulfur content is 0.15%.

APPENDIX B: MODEL INPUTS

AERMOD
POINT Sources

Source ID	X Coord.	Y Coord.	Base Elevation	Release Height	PM_{10} Emission Rate		$PM_{2.5}$ Emission Rate		CO Emission Rate		NO_x Emission Rate		SO_2 Emission Rate		Gas Exit Temperature	Gas Exit Velocity	Inside Diameter	Description
	(m)	(m)	(m)	(m)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(K)	(m/s)	(m)	
ESENG1	329247.37	5103134.23	440.69	5.85	1.88E+00	2.36E-01	1.88E+00	2.36E-01	1.47E+01	1.86E+00	6.43E+01	8.10E+00	3.25E-02	4.10E-03	600	50	0.393192	East Substation Loading Engine 1
ESENG2	329247.37	5103129.68	440.69	5.85	1.88E+00	2.36E-01	1.88E+00	2.36E-01	1.47E+01	1.86E+00	6.43E+01	8.10E+00	3.25E-02	4.10E-03	600	50	0.393192	East Substation Loading Engine 2
ESENG3	329247.37	5103124.92	440.69	5.85	1.88E+00	2.36E-01	1.88E+00	2.36E-01	1.47E+01	1.86E+00	6.43E+01	8.10E+00	3.25E-02	4.10E-03	600	50	0.393192	East Substation Loading Engine 3
ELCBENG	329469.69	5103182.16	440.69	3.9	4.69E-01	5.91E-02	4.69E-01	5.91E-02	3.69E+00	4.64E-01	1.61E+01	2.03E+00	8.13E-03	1.02E-03	600	50	0.19812	East Laydown CBP Engine 1
ECBBLDG	329458.3491	5103186.192	440.69	15.24	2.97E-01	3.75E-02	4.46E-02	5.62E-03							0	3.048	1.57	East Laydown CBP Exhaust from Main Building
ECBSILO1	329450.8552	5103182.517	440.69	18.29	9.88E-05	1.24E-05	1.48E-05	1.87E-06							0	3.048	1.22	East Laydown CBP Silo 1
ECBSILO2	329449.7765	5103187.046	440.69	18.29	9.88E-05	1.24E-05	1.48E-05	1.87E-06							0	3.048	1.22	East Laydown CBP Silo 2
ECBSILO3	329450.6461	5103191.662	440.69	18.29	9.88E-05	1.24E-05	1.48E-05	1.87E-06							0	3.048	1.22	East Laydown CBP Silo 3
WSENG1	303058.24	5118114.6	421.13	5.85	1.88E+00	2.36E-01	1.88E+00	2.36E-01	1.47E+01	1.86E+00	6.43E+01	8.10E+00	3.25E-02	4.10E-03	600	50	0.393192	West Substation Loading Engine 1
WSENG2	303058.24	5118110.18	421.13	5.85	1.88E+00	2.36E-01	1.88E+00	2.36E-01	1.47E+01	1.86E+00	6.43E+01	8.10E+00	3.25E-02	4.10E-03	600	50	0.393192	West Substation Loading Engine 2
WSENG3	303058.24	5118105.64	421.13	5.85	1.88E+00	2.36E-01	1.88E+00	2.36E-01	1.47E+01	1.86E+00	6.43E+01	8.10E+00	3.25E-02	4.10E-03	600	50	0.393192	West Substation Loading Engine 3
WLCBENG	317848.04	5109700.25	561.17	3.9	4.69E-01	5.91E-02	4.69E-01	5.91E-02	3.69E+00	4.64E-01	1.61E+01	2.03E+00	8.13E-03	1.02E-03	600	50	0.19812	West Laydown CBP Engine 1
WCBBLDG	317847.19	5109712.80	561.17	15.24	2.97E-01	3.75E-02	4.46E-02	5.62E-03							0	3.048	1.57	West Laydown CBP Exhaust from Main Building
WCBSILO1	317839.63	5109716.34	561.17	18.29	9.88E-05	1.24E-05	1.48E-05	1.87E-06							0	3.048	1.22	West Laydown CBP Silo 1
WCBSILO2	317838.63	5109711.80	561.17	18.29	9.88E-05	1.24E-05	1.48E-05	1.87E-06							0	3.048	1.22	West Laydown CBP Silo 2
WCBSILO3	317839.58	5109707.20	561.17	18.29	9.88E-05	1.24E-05	1.48E-05	1.87E-06							0	3.048	1.22	West Laydown CBP Silo 3

AERMOD
VOLUME Sources

Source ID	X Coord.	Y Coord.	Base Elevation	Release Height	PM_{10} Emission Rate		$PM_{2.5}$ Emission Rate		CO Emission Rate		NO_x Emission Rate	SO_2 Emission Rate	Side Length	Building Height	Initial Lateral Dimension	Initial Vertical Dimension	Description
	(m)	(m)	(m)	(m)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(g/s)	(lb/hr)	(lb/hr)	(m)	(m)	(m)	(m)	
ELCBHOP1	329502.68	5103181.89	440.69	3.05	6.61E-03	8.33E-04	1.00E-03	1.26E-04					4.11	6.10	0.96	2.84	East Laydown: CBP Loading to hopper 1
ELCBHOP2	329502.65	5103186.18	440.69	3.05	6.61E-03	8.33E-04	1.00E-03	1.26E-04					4.11	6.10	0.96	2.84	East Laydown: CBP Loading to hopper 2
ELCBHOP3	329502.61	5103190.16	440.69	3.05	6.61E-03	8.33E-04	1.00E-03	1.26E-04					4.11	6.10	0.96	2.84	East Laydown: CBP Loading to hopper 3
ELCBSP1	329451.47	5103139.67	440.69	1.52	3.97E-03	5.00E-04	6.01E-04	7.57E-05					0.91		0.21	0.71	East Laydown: Front-End Loader Drop to CBP storage pile 1
ELCBSP2	329496.26	5103139.85	440.69	1.52	3.97E-03	5.00E-04	6.01E-04	7.57E-05					0.91		0.21	0.71	East Laydown: Front-End Loader Drop to CBP storage pile 2
ELCBSP3	329534.98	5103140.22	440.69	1.52	3.97E-03	5.00E-04	6.01E-04	7.57E-05					0.91		0.21	0.71	East Laydown: Front-End Loader Drop to CBP storage pile 3
WLCBHOP1	317919.10	5109713.21	561.17	3.05	6.61E-03	8.33E-04	1.00E-03	1.26E-04					4.11	6.10	0.96	2.84	West Laydown: CBP Loading to hopper 1
WLCBHOP2	317919.11	5109709.10	561.17	3.05	6.61E-03	8.33E-04	1.00E-03	1.26E-04					4.11	6.10	0.96	2.84	West Laydown: CBP Loading to hopper 2
WLCBHOP3	317919.11	5109704.98	561.17	3.05	6.61E-03	8.33E-04	1.00E-03	1.26E-04					4.11	6.10	0.96	2.84	West Laydown: CBP Loading to hopper 3
WLCBSP1	317868.67	5109756.58	561.17	1.52	3.97E-03	5.00E-04	6.01E-04	7.57E-05					0.91		0.21	0.71	West Laydown: Front-End Loader Drop to CBP storage pile 1
WLCBSP2	317913.45	5109755.73	561.17	1.52	3.97E-03	5.00E-04	6.01E-04	7.57E-05					0.91		0.21	0.71	West Laydown: Front-End Loader Drop to CBP storage pile 2
WLCBSP3	317952.17	5109754.77	561.17	1.52	3.97E-03	5.00E-04	6.01E-04	7.57E-05					0.91		0.21	0.71	West Laydown: Front-End Loader Drop to CBP storage pile 3

AERMOD
AREA Sources

Source ID	AREA Source Type	X Coord.	Y Coord.	Base Elevation	Release Height	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	Circular Area Radius	Initial Vertical Dimension	No. Vertices (or sides)	Description
		(m)	(m)	(m)	(m)	(lb/hr)	(lb/hr)	(m)	(m)		
ELCBS1	AREACIRC	329539.835	5103149.17	440.69	1.52	4.87E-04	1.46E-04	10	0.7088	20	East Laydown: CBP Storage Pile 1
ELCBS2	AREACIRC	329501.44	5103148.53	440.69	1.52	4.87E-04	1.46E-04	10	0.7088	20	East Laydown: CBP Storage Pile 2
ELCBS3	AREACIRC	329456.341	5103148.17	440.69	1.52	4.87E-04	1.46E-04	10	0.7088	20	East Laydown: CBP Storage Pile 3
ELFELCB	AREAPOLY	329505.47	5103201.84	440.69	3.05	2.43E-01	2.43E-02	N/A	1.4200	5	East Laydown: Front-End Loader CBP
WLCBS1	AREACIRC	317868.672	5109756.58	561.17	1.52	4.87E-04	1.46E-04	10	0.7088	20	West Laydown: CBP Storage Pile 1
WLCBS2	AREACIRC	317913.478	5109755.61	561.17	1.52	4.87E-04	1.46E-04	10	0.7088	20	West Laydown: CBP Storage Pile 2
WLCBS3	AREACIRC	317952.172	5109754.77	561.17	1.52	4.87E-04	1.46E-04	10	0.7088	20	West Laydown: CBP Storage Pile 3
WLFELCB	AREAPOLY	317916.786	5109702.21	561.17	3.05	2.43E-01	2.43E-02	N/A	1.4200	5	West Laydown: Front-End Loader CBP

AERMOD
LINE Sources

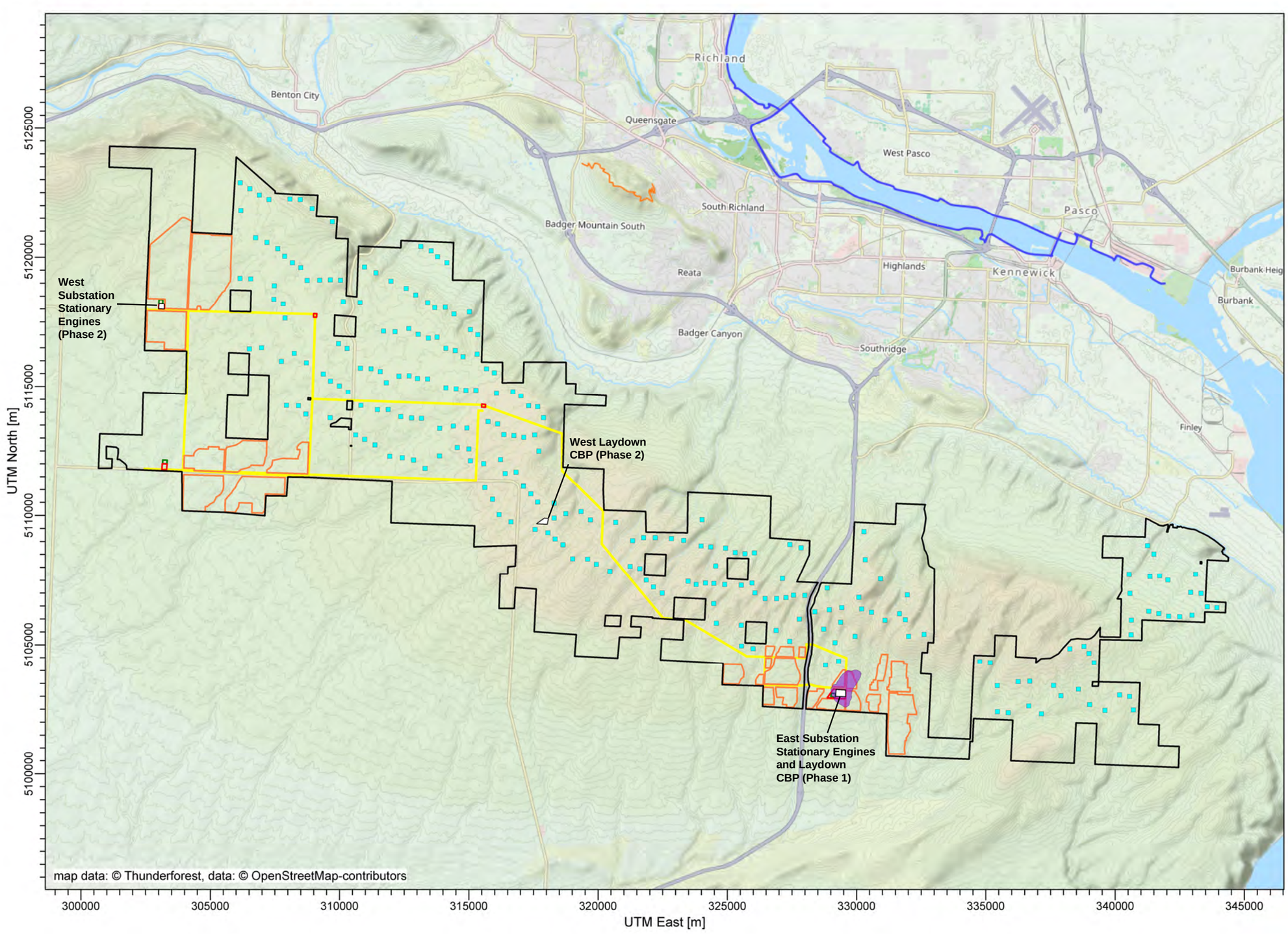
Source ID	X Coord.	Y Coord.	Base Elevation	Release Height	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate	X2 Coordinate	Y2 Coordinate	Width	Initial Vertical Dimension	Description	Length	Area
	(m)	(m)	(m)	(m)	[g/(s-m^2)]	[g/(s-m^2)]	(m)	(m)	(m)	(m)		(m)	(m^2)
	ENTER TOTAL HAUL ROAD EMISSIONS (g/s)				**9.15E-03**	**2.25E-03**						**506.02**	**3701.62**
ELCBPRD1	329549.66	5103225.95	440.69	4.27	2.472E-06	6.07E-07	329550.32	5103240.71	17.07	13.02	East Laydown: aggregate storage piles 01	14.77	108.08
ELCBPRD2	329555.59	5103217.22	440.69	4.27	2.472E-06	6.07E-07	329549.66	5103225.95	17.07	13.02	East Laydown: aggregate storage piles 02	10.55	77.20
ELCBPRD3	329557.71	5103124.19	440.69	4.27	2.472E-06	6.07E-07	329555.59	5103217.22	17.07	13.02	East Laydown: aggregate storage piles 03	93.05	680.71
ELCBPRD4	329544.64	5103109.44	440.69	4.27	2.472E-06	6.07E-07	329557.7	5103124.19	17.07	13.02	East Laydown: aggregate storage piles 04	19.70	144.12
ELCBPRD5	329434.89	5103111.61	440.69	4.27	2.472E-06	6.07E-07	329544.29	5103109.5	17.07	13.02	East Laydown: aggregate storage piles 05	109.42	800.43
ELCBPRD6	329434.6	5103111.39	440.69	4.27	2.472E-06	6.07E-07	329427.37	5103133.45	17.07	13.02	East Laydown: aggregate storage piles 06	23.21	169.82
ELCBPRD7	329427.29	5103133.47	440.69	4.27	2.472E-06	6.07E-07	329429.4	5103229.86	17.07	13.02	East Laydown: aggregate storage piles 07	96.41	705.28
ELCBPRD8	329429.4	5103229.86	440.69	4.27	2.472E-06	6.07E-07	329429.21	5103248.42	17.07	13.02	East Laydown: aggregate storage piles 08	18.56	135.78
ELCBPRD9	329429.4	5103229.86	440.69	4.27	2.472E-06	6.07E-07	329549.66	5103225.95	17.07	13.02	East Laydown: aggregate storage piles 09	120.32	880.19
	ENTER TOTAL HAUL ROAD EMISSIONS (g/s)				**9.15E-03**	**2.25E-03**						**560.44**	**4099.76**
WLCBPRD1	317959.09	5109673.92	561.17	4.27	2.232E-06	5.48E-07	317958.97	5109662.15	17.07	13.02	West Laydown: aggregate storage piles 01	11.77	86.10
WLCBPRD2	317959.09	5109673.92	561.17	4.27	2.232E-06	5.48E-07	317970.69	5109687.12	17.07	13.02	West Laydown: aggregate storage piles 02	17.57	128.55
WLCBPRD3	317993.55	5109774.27	561.17	4.27	2.232E-06	5.48E-07	317970.68	5109687.13	17.07	13.02	West Laydown: aggregate storage piles 03	90.09	659.04
WLCBPRD4	317993.54	5109774.23	561.17	4.27	2.232E-06	5.48E-07	317982.7	5109785.49	17.07	13.02	West Laydown: aggregate storage piles 04	15.63	114.34
WLCBPRD5	317982.7	5109785.47	561.17	4.27	2.232E-06	5.48E-07	317890.81	5109793.15	17.07	13.02	West Laydown: aggregate storage piles 05	92.21	674.54
WLCBPRD6	317870.95	5109784.84	561.17	4.27	2.232E-06	5.48E-07	317890.83	5109793.13	17.07	13.02	West Laydown: aggregate storage piles 06	21.54	157.56
WLCBPRD7	317810.31	5109735.41	561.17	4.27	2.232E-06	5.48E-07	317870.95	5109784.84	17.07	13.02	West Laydown: aggregate storage piles 07	78.23	572.30
WLCBPRD8	317791.3	5109701.02	561.17	4.27	2.232E-06	5.48E-07	317810.14	5109735.45	17.07	13.02	West Laydown: aggregate storage piles 08	39.25	287.10
WLCBPRD9	317796.49	5109681.29	561.17	4.27	2.232E-06	5.48E-07	317791.34	5109701.08	17.07	13.02	West Laydown: aggregate storage piles 09	20.45	149.59
WLCBPRD10	317796.5	5109681.29	561.17	4.27	2.232E-06	5.48E-07	317796.52	5109670.44	17.07	13.02	West Laydown: aggregate storage piles 10	10.85	79.37
WLCBPRD11	317959.09	5109673.92	561.17	4.27	2.232E-06	5.48E-07	317796.41	5109681.33	17.07	13.02	West Laydown: aggregate storage piles 11	162.85	1191.27

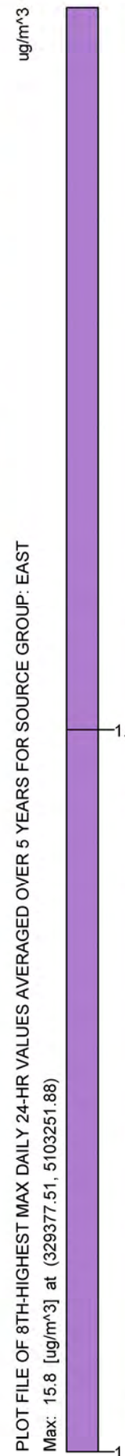
AERMOD
LINE Sources

Source ID	X Coord.	Y Coord.	Base Elevation	Release Height	PM_{10} Emission Rate	X2 Coordinate	Y2 Coordinate	Width	Initial Vertical Dimension	Description
	(m)	(m)	(m)	(m)	[g/(s-m^2)]	(m)	(m)	(m)	(m)	
	ENTER TOTAL HAUL ROAD EMISSIONS (g/s)				0.002246					
ELCBPRD1	329549.66	5103225.95	440.69	4.27	6.069E-07	329550.32	5103240.71	17.07	13.02	East Laydown: aggregate storage piles 01
ELCBPRD2	329555.59	5103217.22	440.69	4.27	6.069E-07	329549.66	5103225.95	17.07	13.02	East Laydown: aggregate storage piles 02
ELCBPRD3	329557.71	5103124.19	440.69	4.27	6.069E-07	329555.59	5103217.22	17.07	13.02	East Laydown: aggregate storage piles 03
ELCBPRD4	329544.64	5103109.44	440.69	4.27	6.069E-07	329557.7	5103124.19	17.07	13.02	East Laydown: aggregate storage piles 04
ELCBPRD5	329434.89	5103111.61	440.69	4.27	6.069E-07	329544.29	5103109.5	17.07	13.02	East Laydown: aggregate storage piles 05
ELCBPRD6	329434.60	5103111.39	440.69	4.27	6.069E-07	329427.37	5103133.45	17.07	13.02	East Laydown: aggregate storage piles 06
ELCBPRD7	329427.29	5103133.47	440.69	4.27	6.069E-07	329429.4	5103229.86	17.07	13.02	East Laydown: aggregate storage piles 07
ELCBPRD8	329429.40	5103229.86	440.69	4.27	6.069E-07	329429.21	5103248.42	17.07	13.02	East Laydown: aggregate storage piles 08
ELCBPRD9	329429.40	5103229.86	440.69	4.27	6.069E-07	329549.66	5103225.95	17.07	13.02	East Laydown: aggregate storage piles 09
	ENTER TOTAL HAUL ROAD EMISSIONS (g/s)				0.002246					
WLCBPRD1	317959.09	5109673.92	561.17	4.27	5.479E-07	317958.97	5109662.15	17.07	13.02	West Laydown: aggregate storage piles 01
WLCBPRD2	317959.09	5109673.92	561.17	4.27	5.479E-07	317970.69	5109687.12	17.07	13.02	West Laydown: aggregate storage piles 02
WLCBPRD3	317993.55	5109774.27	561.17	4.27	5.479E-07	317970.68	5109687.13	17.07	13.02	West Laydown: aggregate storage piles 03
WLCBPRD4	317993.54	5109774.23	561.17	4.27	5.479E-07	317982.7	5109785.49	17.07	13.02	West Laydown: aggregate storage piles 04
WLCBPRD5	317982.7	5109785.47	561.17	4.27	5.479E-07	317890.81	5109793.15	17.07	13.02	West Laydown: aggregate storage piles 05
WLCBPRD6	317870.95	5109784.84	561.17	4.27	5.479E-07	317890.83	5109793.13	17.07	13.02	West Laydown: aggregate storage piles 06
WLCBPRD7	317810.31	5109735.41	561.17	4.27	5.479E-07	317870.95	5109784.84	17.07	13.02	West Laydown: aggregate storage piles 07
WLCBPRD8	317791.3	5109701.02	561.17	4.27	5.479E-07	317810.14	5109735.45	17.07	13.02	West Laydown: aggregate storage piles 08
WLCBPRD9	317796.49	5109681.29	561.17	4.27	5.479E-07	317791.34	5109701.08	17.07	13.02	West Laydown: aggregate storage piles 09
WLCBPRD10	317796.5	5109681.29	561.17	4.27	5.479E-07	317796.52	5109670.44	17.07	13.02	West Laydown: aggregate storage piles 10
WLCBPRD11	317959.09	5109673.92	561.17	4.27	5.479E-07	317796.41	5109681.33	17.07	13.02	West Laydown: aggregate storage piles 11

APPENDIX C: FIGURES

Figure C-1
Horse Heaven - Air Quality Dispersion Modeling Evaluation
East Stationary Engines and Concrete Batch Plant (Phase 1) - 24-hour PM2.5





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM2.5 Maximum Impact Area 55% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
15.8 ug/m^3

COMPANY NAME:

MODELER:

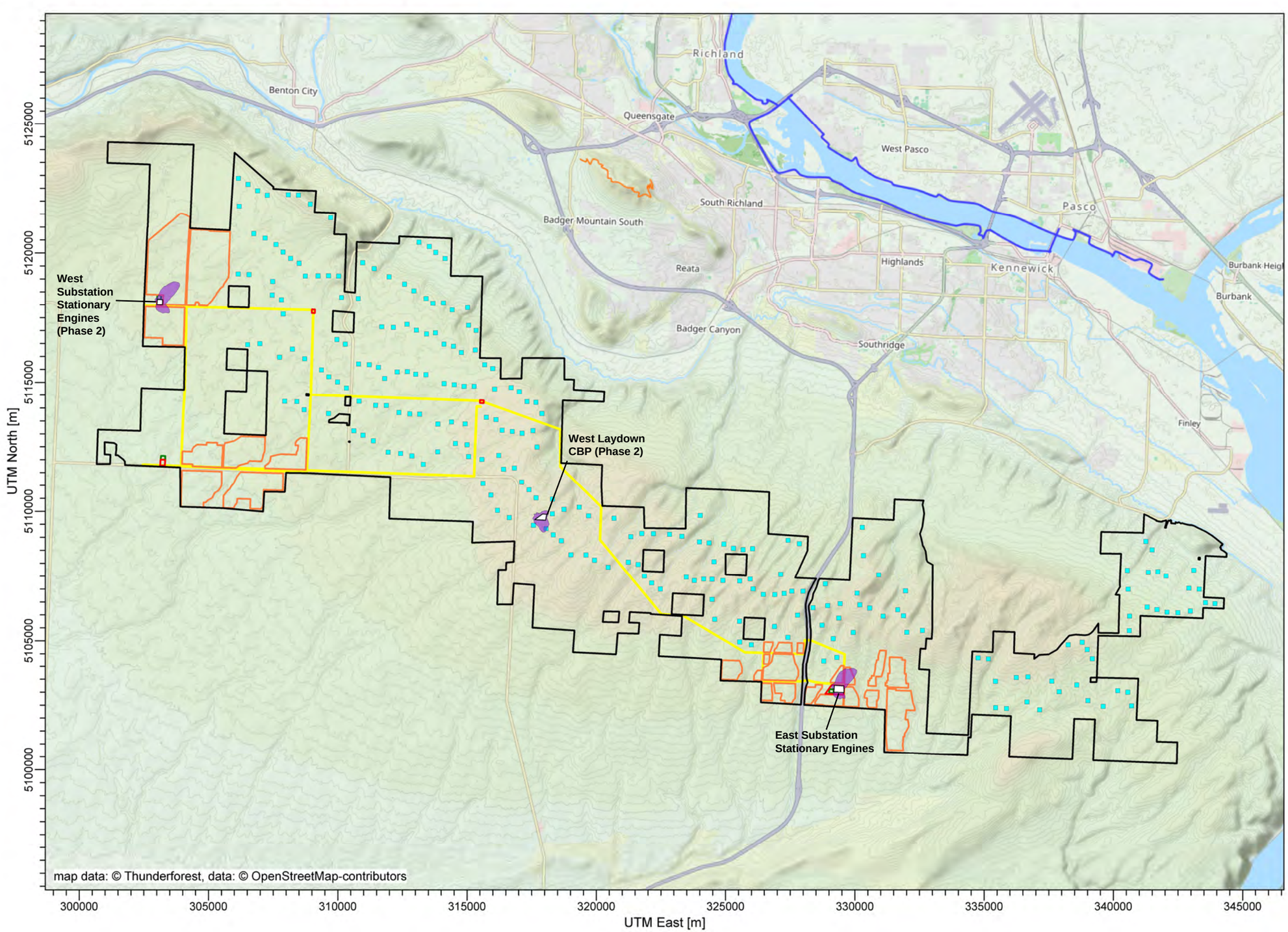
DATE:
6/13/2023

SCALE: 1:150,000
0 5 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-2
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines and West Concrete Batch Plant (Phase 2) - 24-hour PM2.5



LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM2.5 Maximum Impact Area 55% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
16.9 ug/m^3

COMPANY NAME:

MODELER:

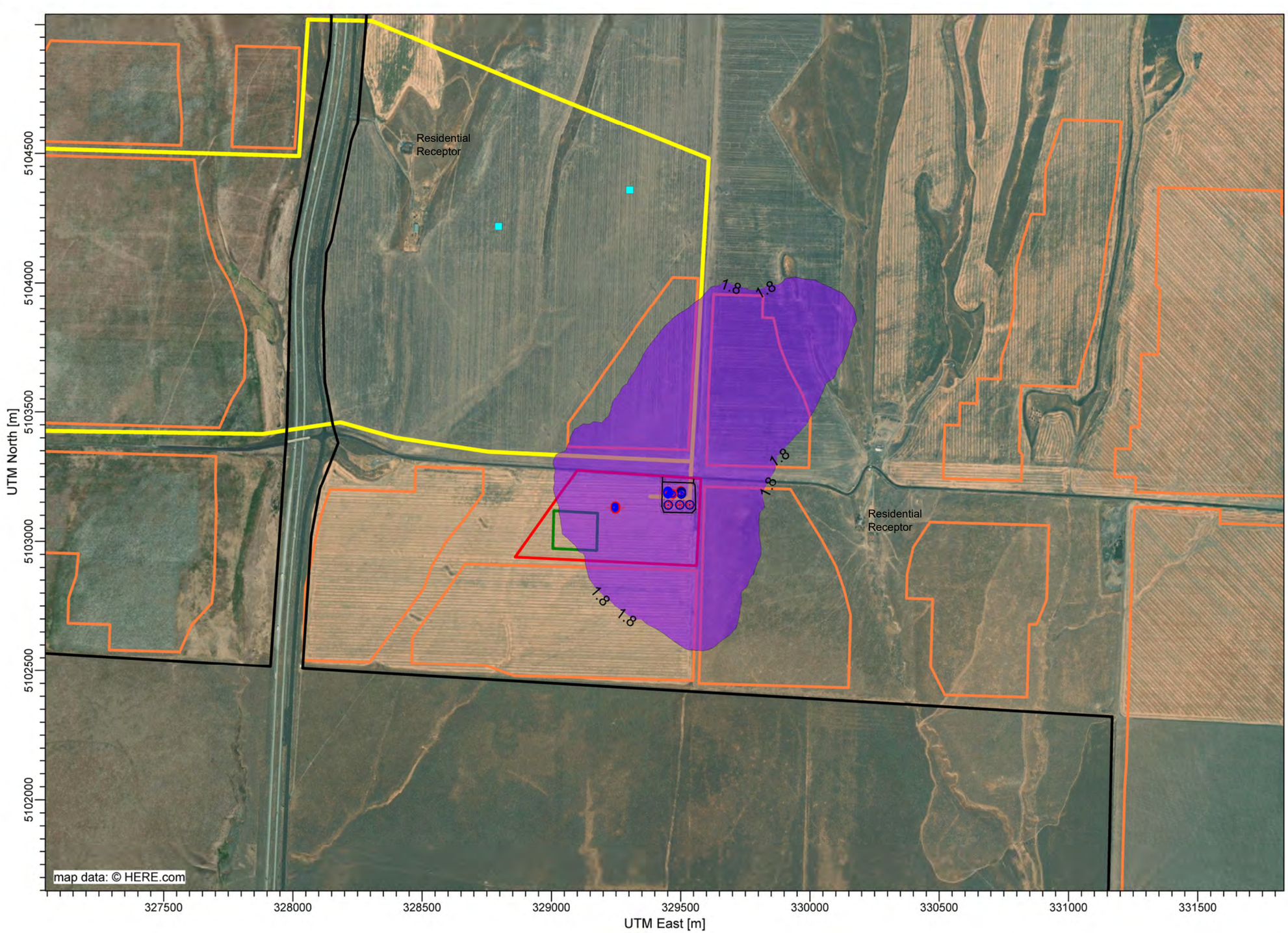
DATE:
6/12/2023

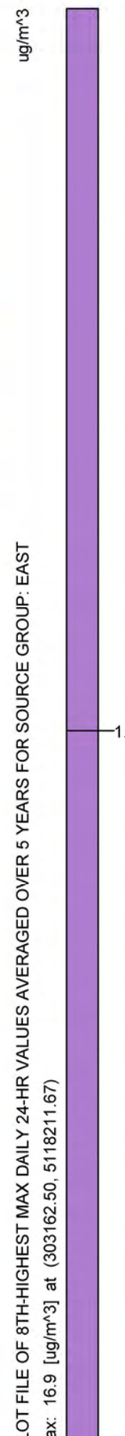
SCALE: 1:150,000
0 5 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-3
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines and East Concrete Batch Plant (Phase 1) - 24-hour PM2.5





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM2.5 Maximum Impact Area 55% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
16.9 ug/m^3

COMPANY NAME:

MODELER:

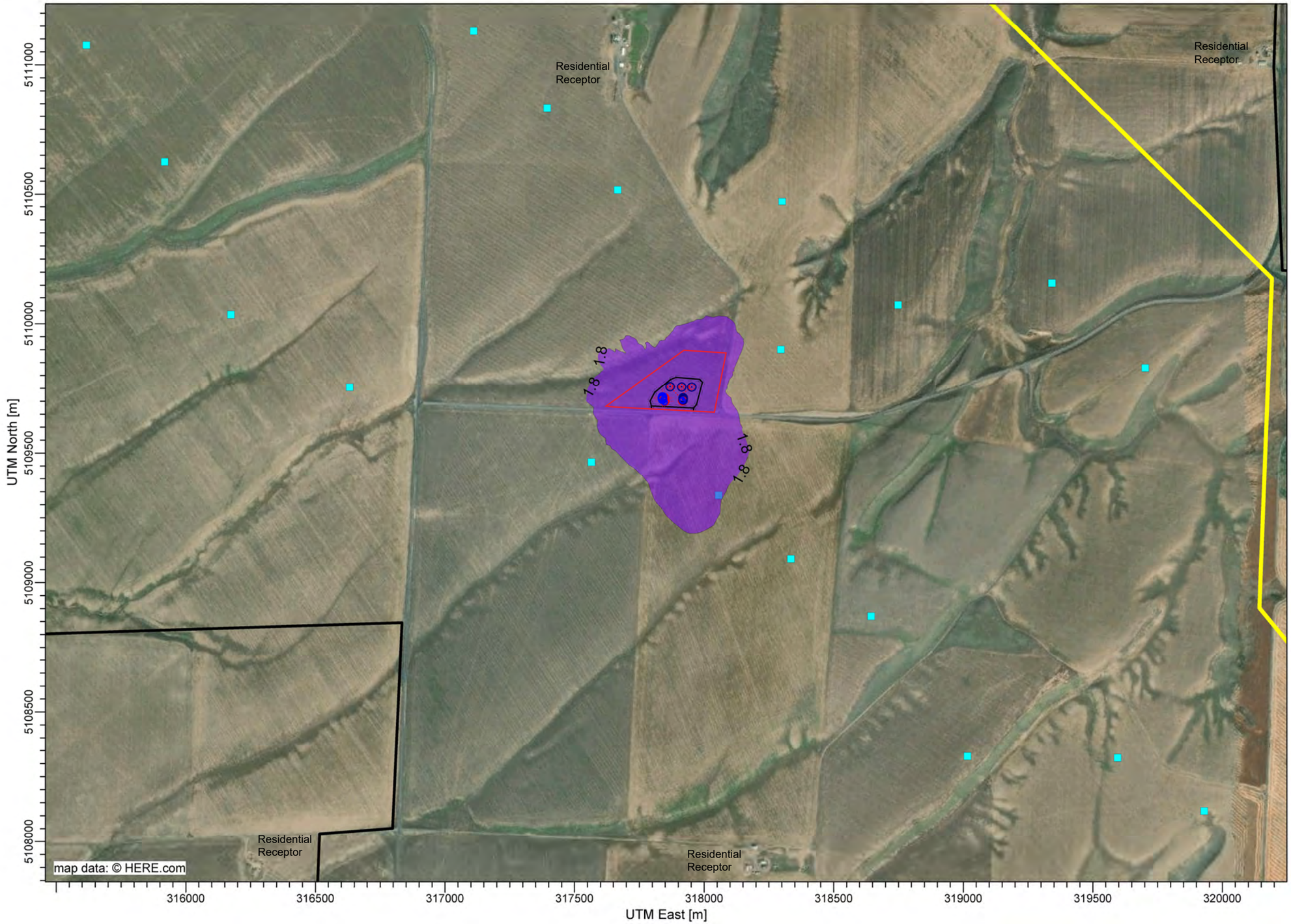
DATE:
6/12/2023

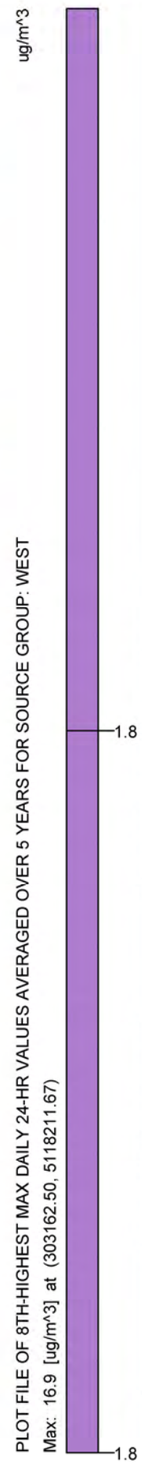
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-4
Horse Heaven - Air Quality Dispersion Modeling Evaluation
West Concrete Batch Plant (Phase 2) - 24-hour PM2.5





LEGEND

- Project Boundary
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM2.5 Maximum Impact Area 55% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
16.9 ug/m^3

COMPANY NAME:

MODELER:

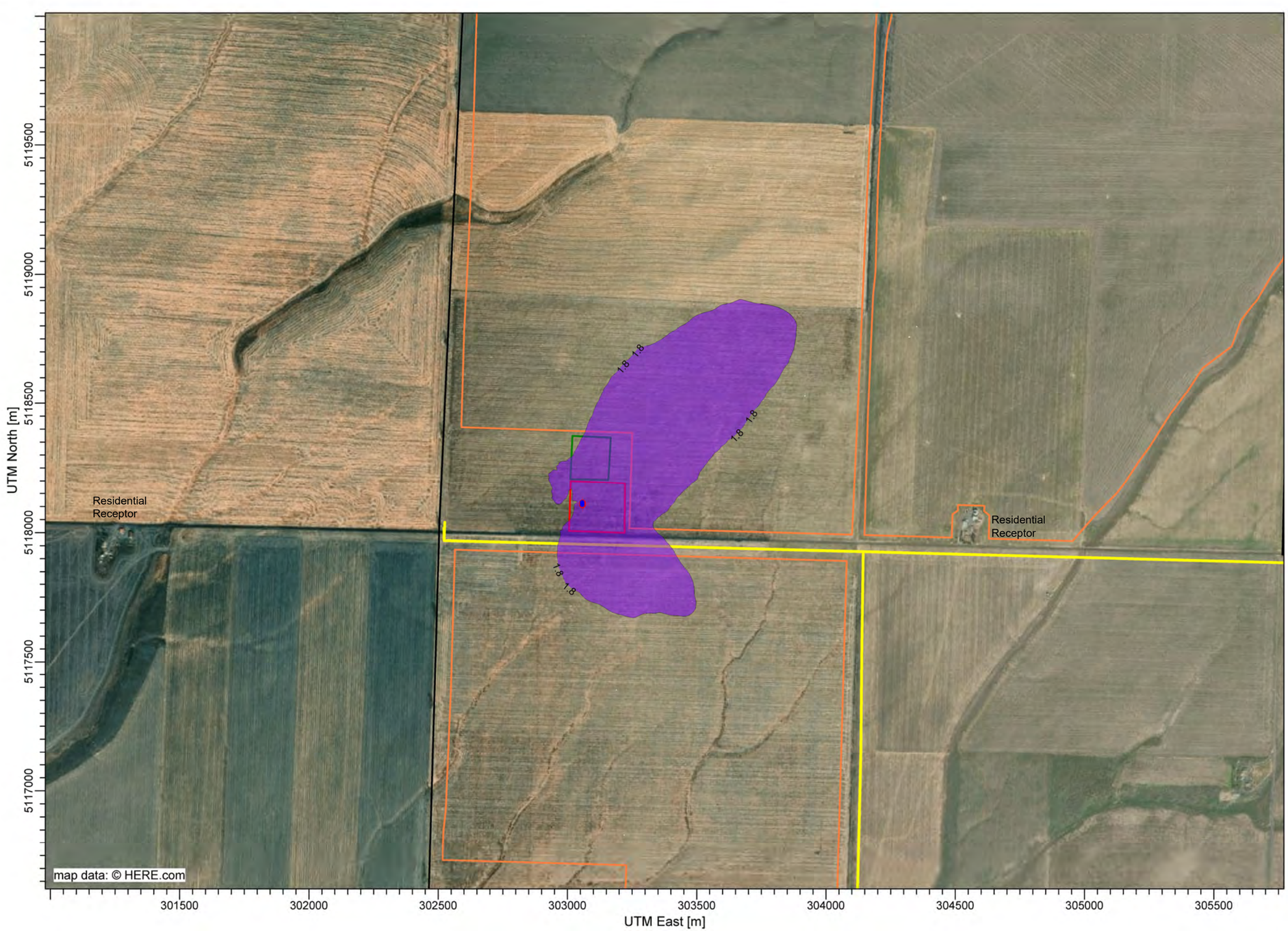
DATE:
6/12/2023

SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-5
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines - West Substation - 24-hour PM2.5



LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- 24-hour PM2.5 Maximum Impact Area 55% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
16.9 ug/m^3

COMPANY NAME:

MODELER:

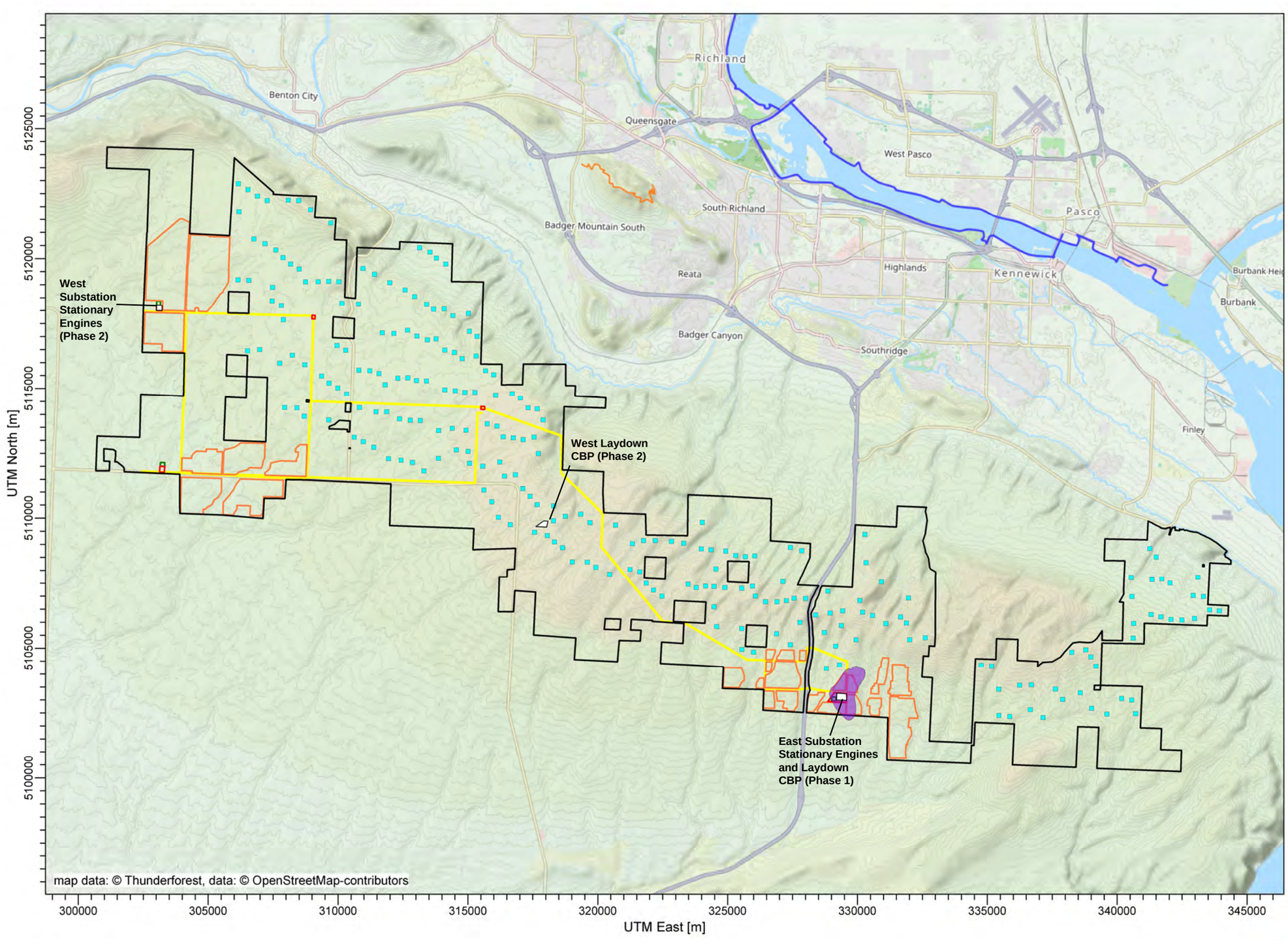
DATE:
6/12/2023

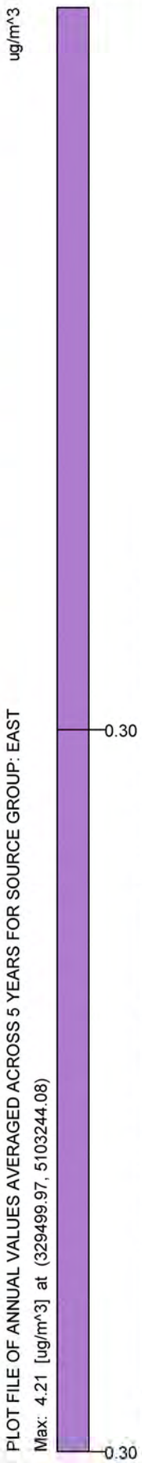
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-6
Horse Heaven - Air Quality Dispersion Modeling Evaluation
East Stationary Engines and Concrete Batch Plant (Phase 1) - Annual PM2.5





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- Annual PM2.5 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
4.21 ug/m^3

COMPANY NAME:

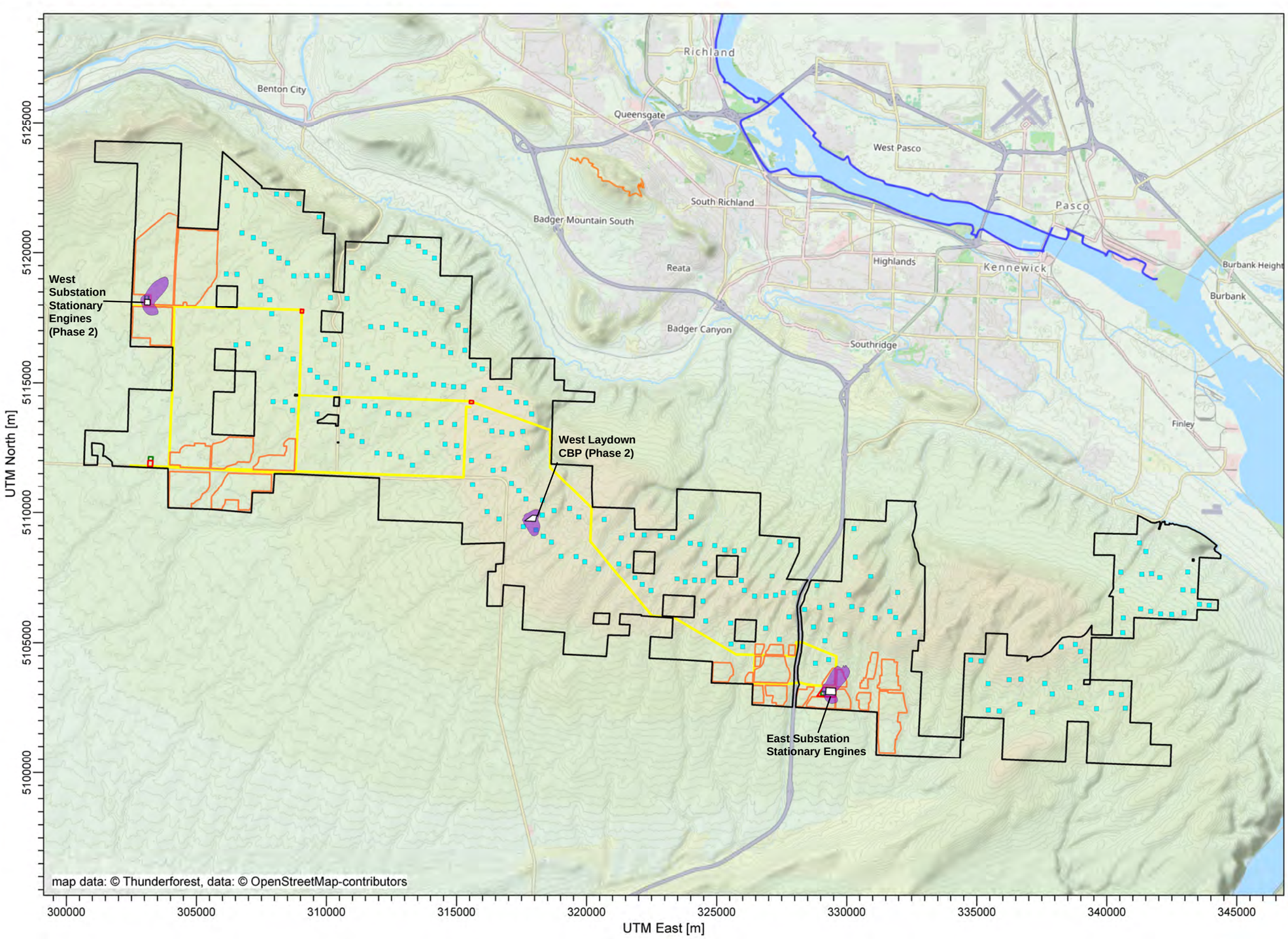
MODELER:

DATE:
6/13/2023

SCALE: 1:150,000
0 5 km

PROJECT NO.:

Figure C-7
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines and West Concrete Batch Plant (Phase 2) - Annual PM2.5



LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- Annual PM2.5 Maximum Impact Area 50% of NAAQS

SOURCES: **56**

RECEPTORS: **20275**

OUTPUT TYPE: **Concentration**

MAX: **3.29 ug/m^3**

COMPANY NAME:

MODELER:

DATE: **6/12/2023**

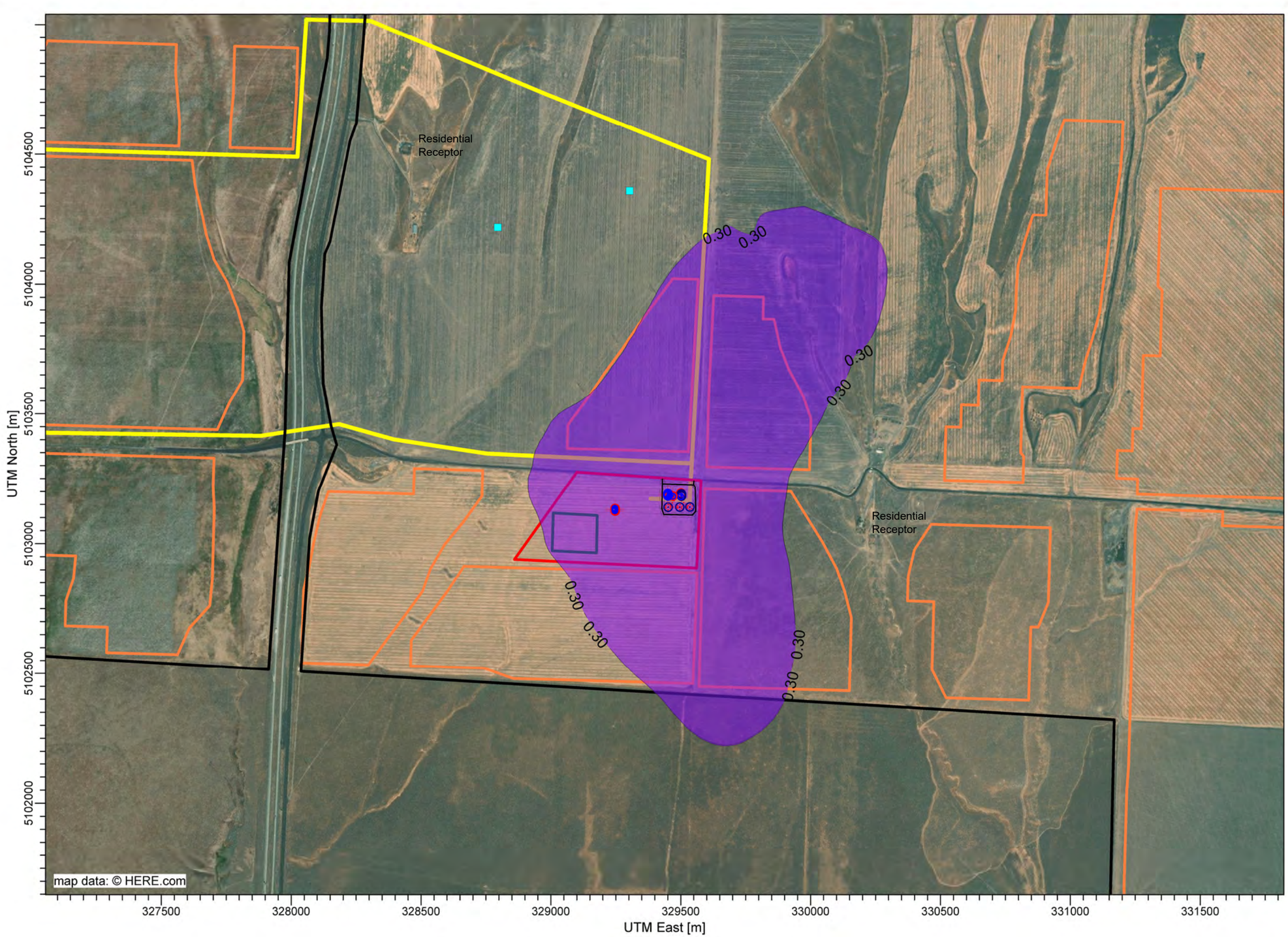
SCALE: 1:150,000

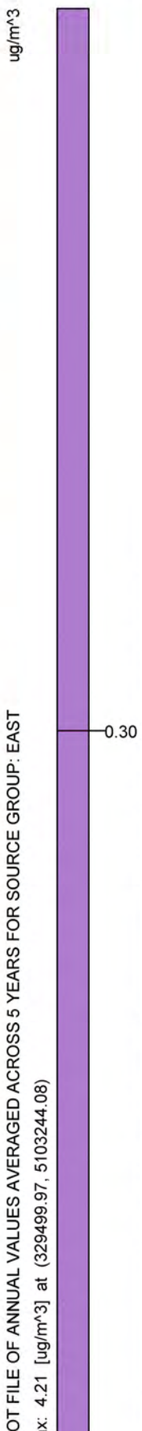
0 5 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-8
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines and East Concrete Batch Plant (Phase 1) - Annual PM2.5





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- Annual PM2.5 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
4.21 ug/m^3

COMPANY NAME:

MODELER:

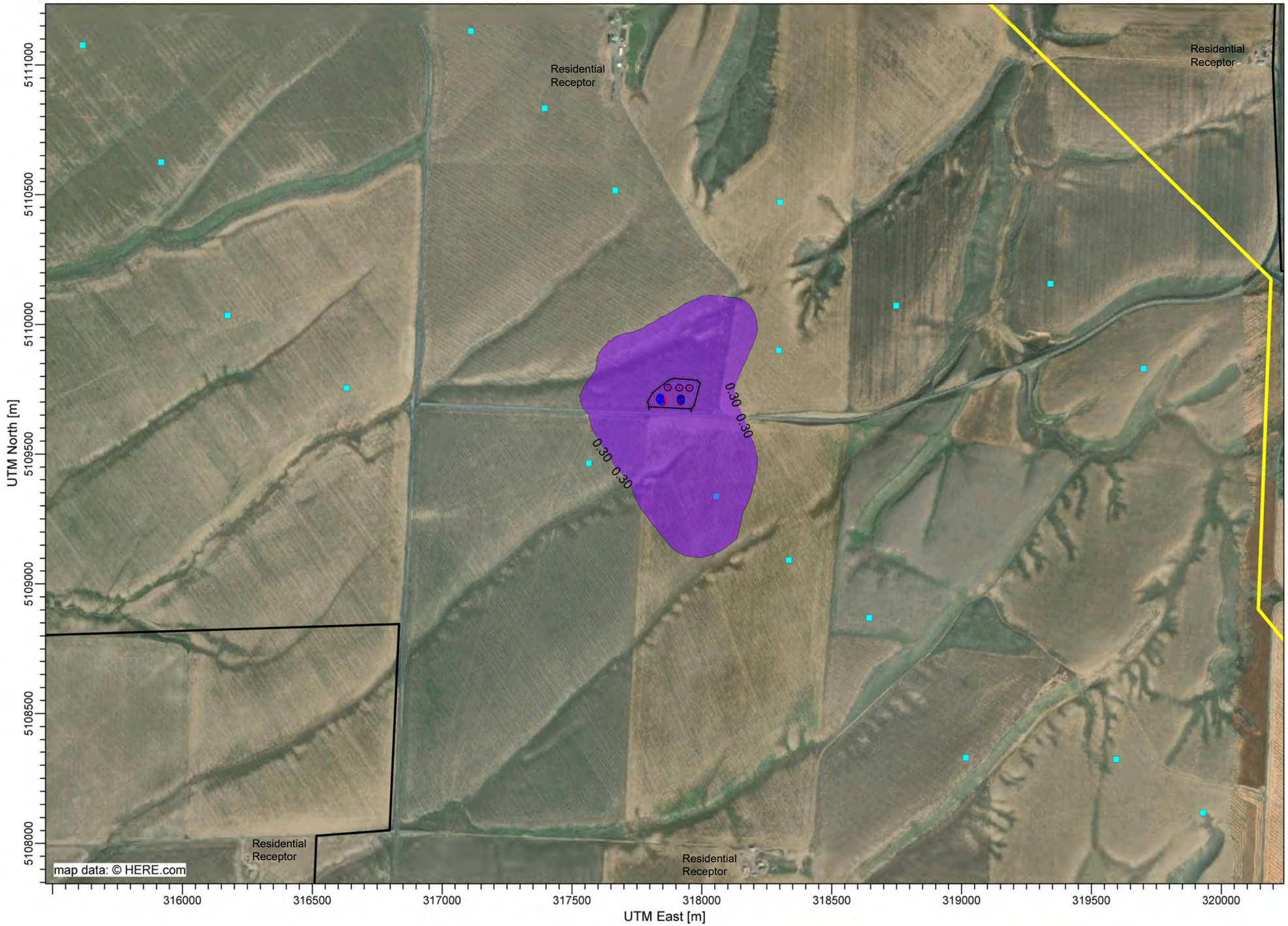
DATE:
6/12/2023

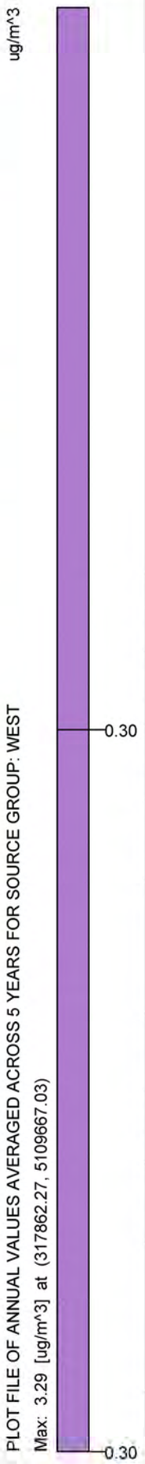
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-9
Horse Heaven - Air Quality Dispersion Modeling Evaluation
West Concrete Batch Plant (Phase 2) - Annual PM2.5





LEGEND

- Project Boundary
- Proposed Transmission Line
- Option 1 Turbine Location
- Annual PM2.5 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
3.29 ug/m^3

COMPANY NAME:

MODELER:

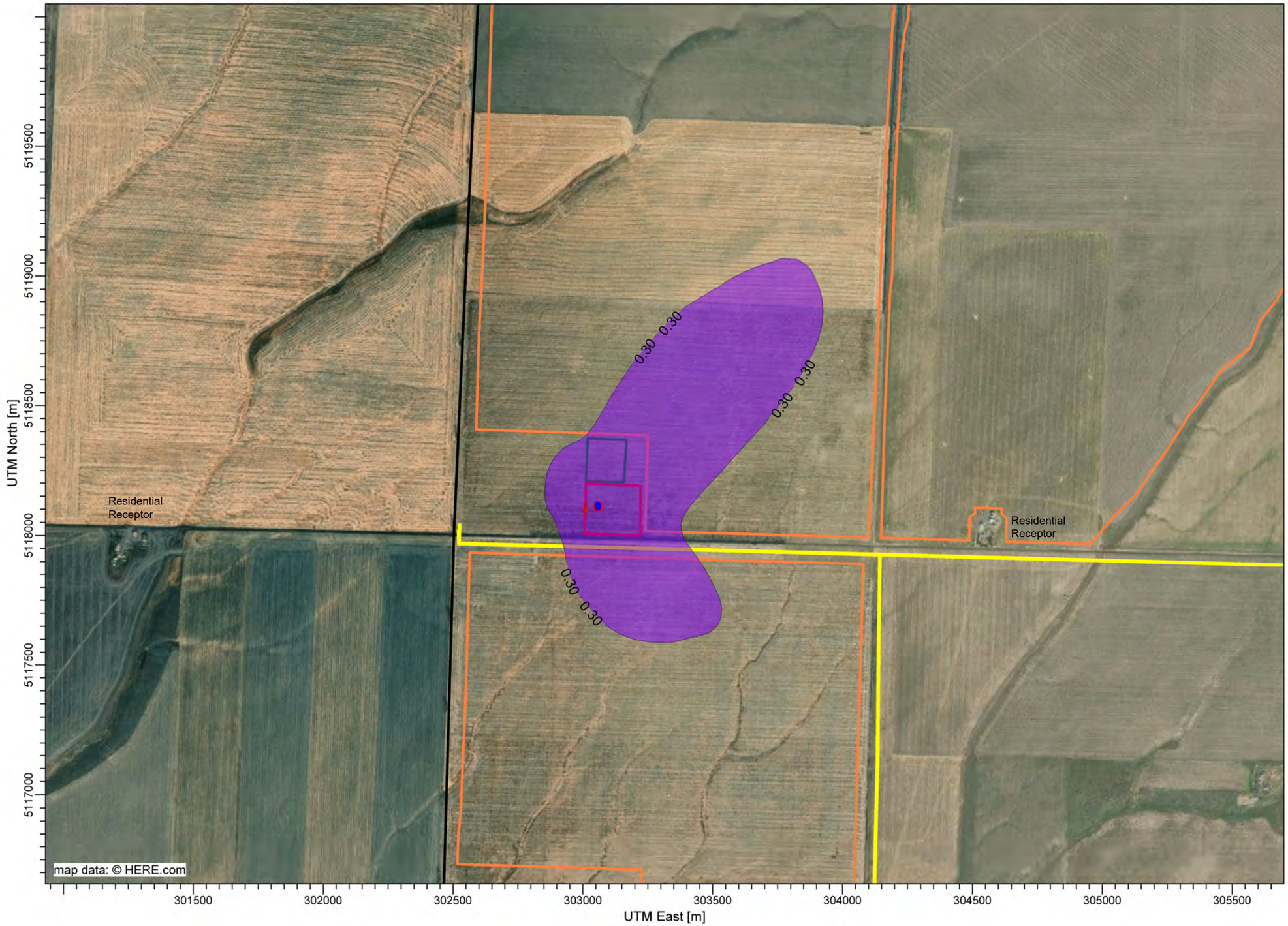
DATE:
6/12/2023

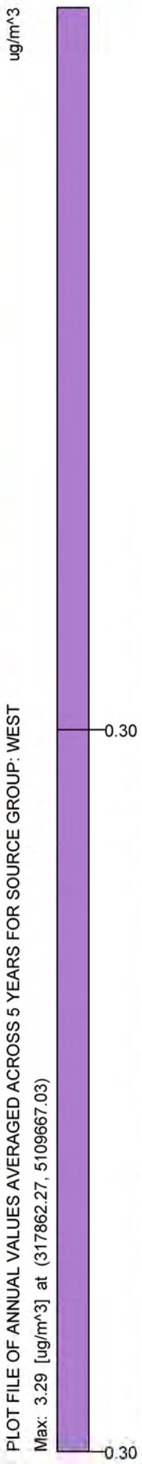
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-10
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines - West Substation - Annual PM2.5





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Annual PM2.5 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
3.29 ug/m^3

COMPANY NAME:

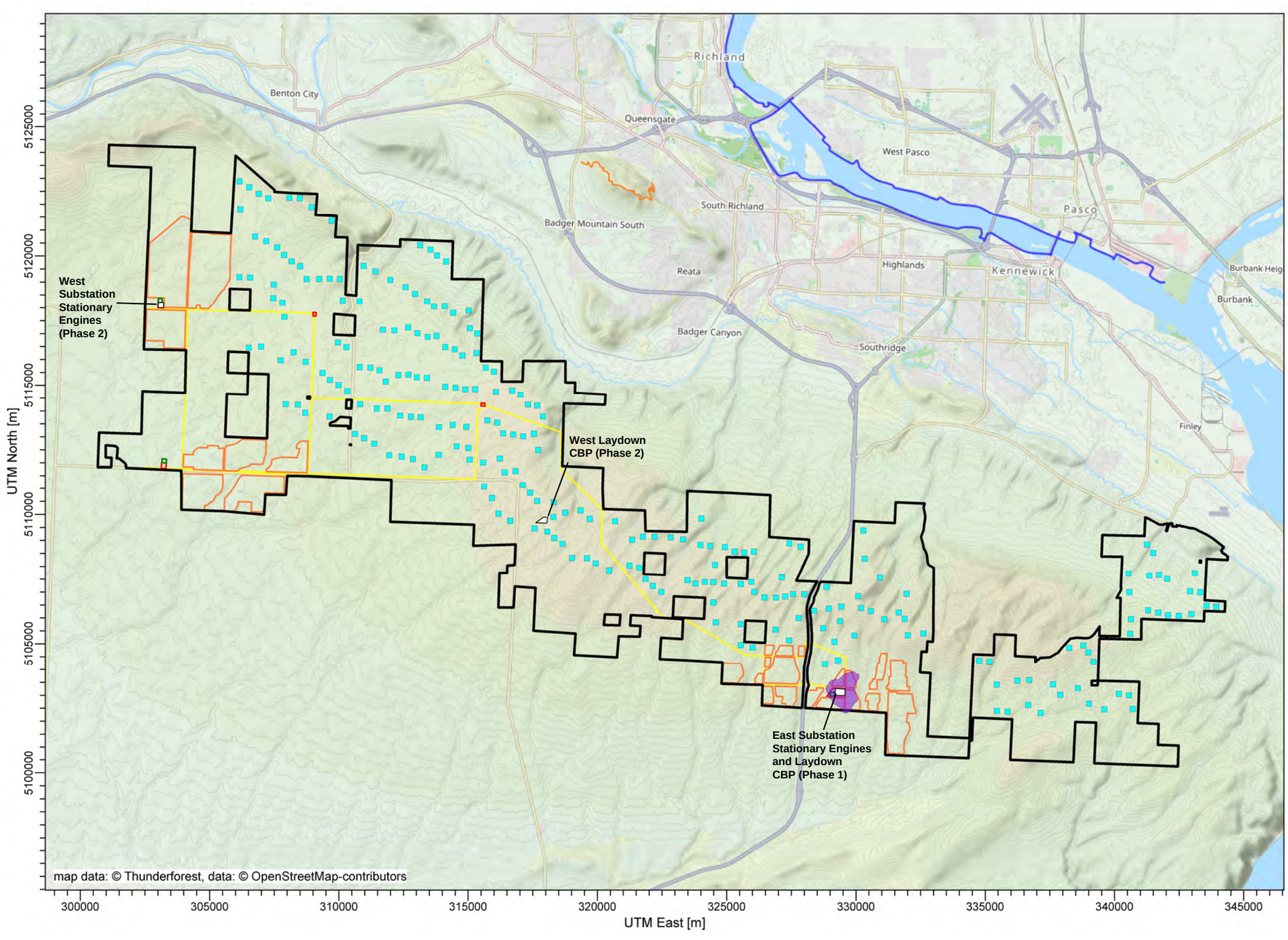
MODELER:

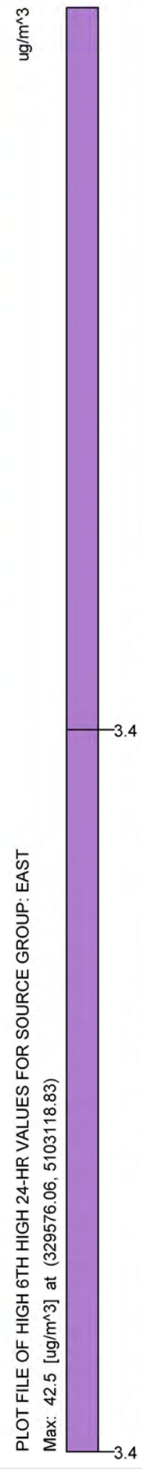
DATE:
6/12/2023

SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

Figure C-11
Horse Heaven - Air Quality Dispersion Modeling Evaluation
East Stationary Engines and Concrete Batch Plant (Phase 1) - 24-hour PM10





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM10 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
42.5 ug/m^3

COMPANY NAME:

MODELER:

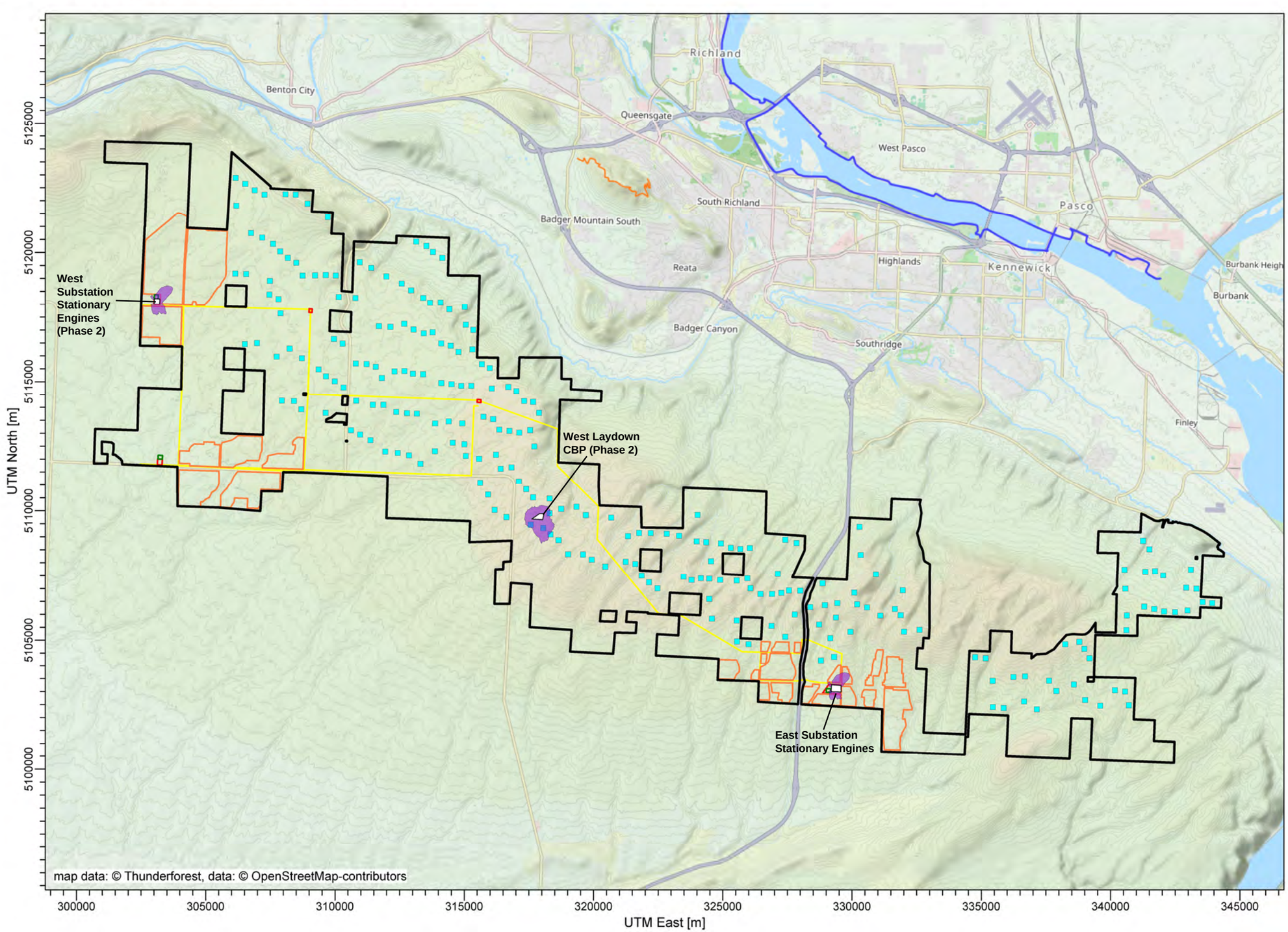
DATE:
6/13/2023

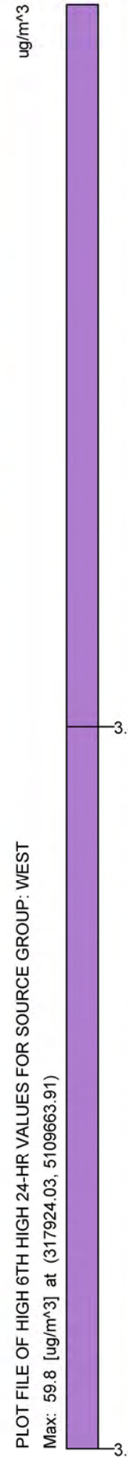
SCALE: 1:150,000
0 5 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-12
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines and West Concrete Batch Plant (Phase 2) - 24-hour PM10





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM10 Maximum Impact Area 50% of NAAQS

SOURCES: **56**

RECEPTORS: **20275**

OUTPUT TYPE: **Concentration**

MAX: **59.8 ug/m^3**

COMPANY NAME:

MODELER:

DATE: **6/12/2023**

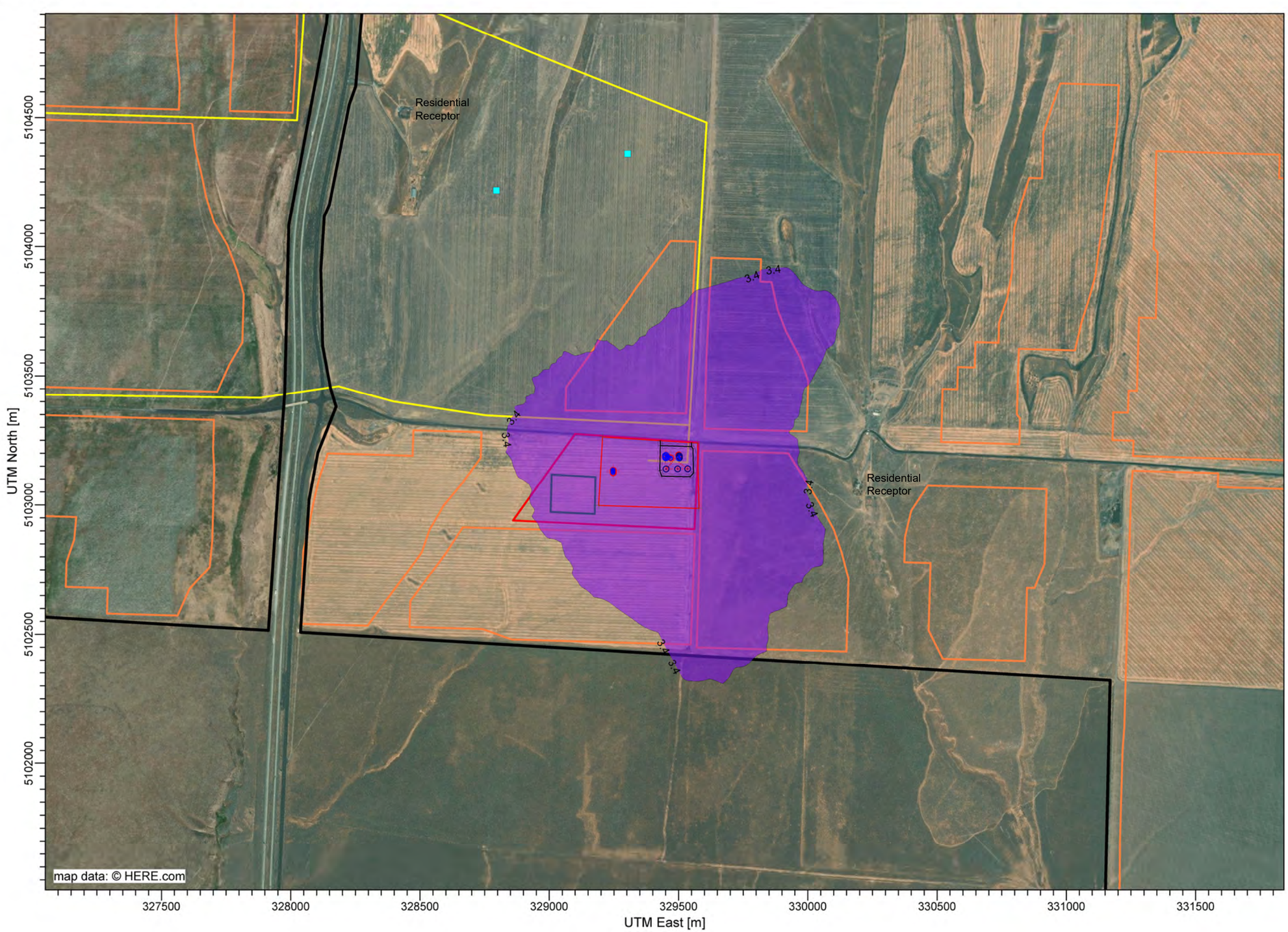
SCALE: 1:150,000

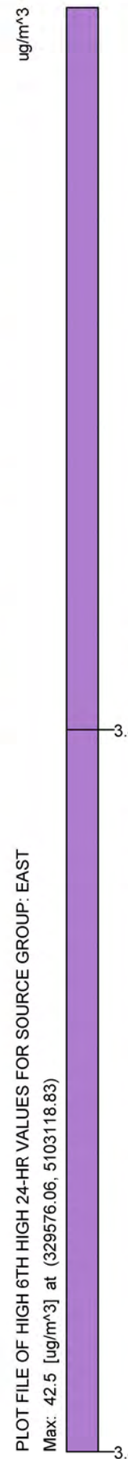
0 — 5 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-13
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines and East Concrete Batch Plant (Phase 1) - 24-hour PM10





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM10 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
42.5 ug/m^3

COMPANY NAME:

MODELER:

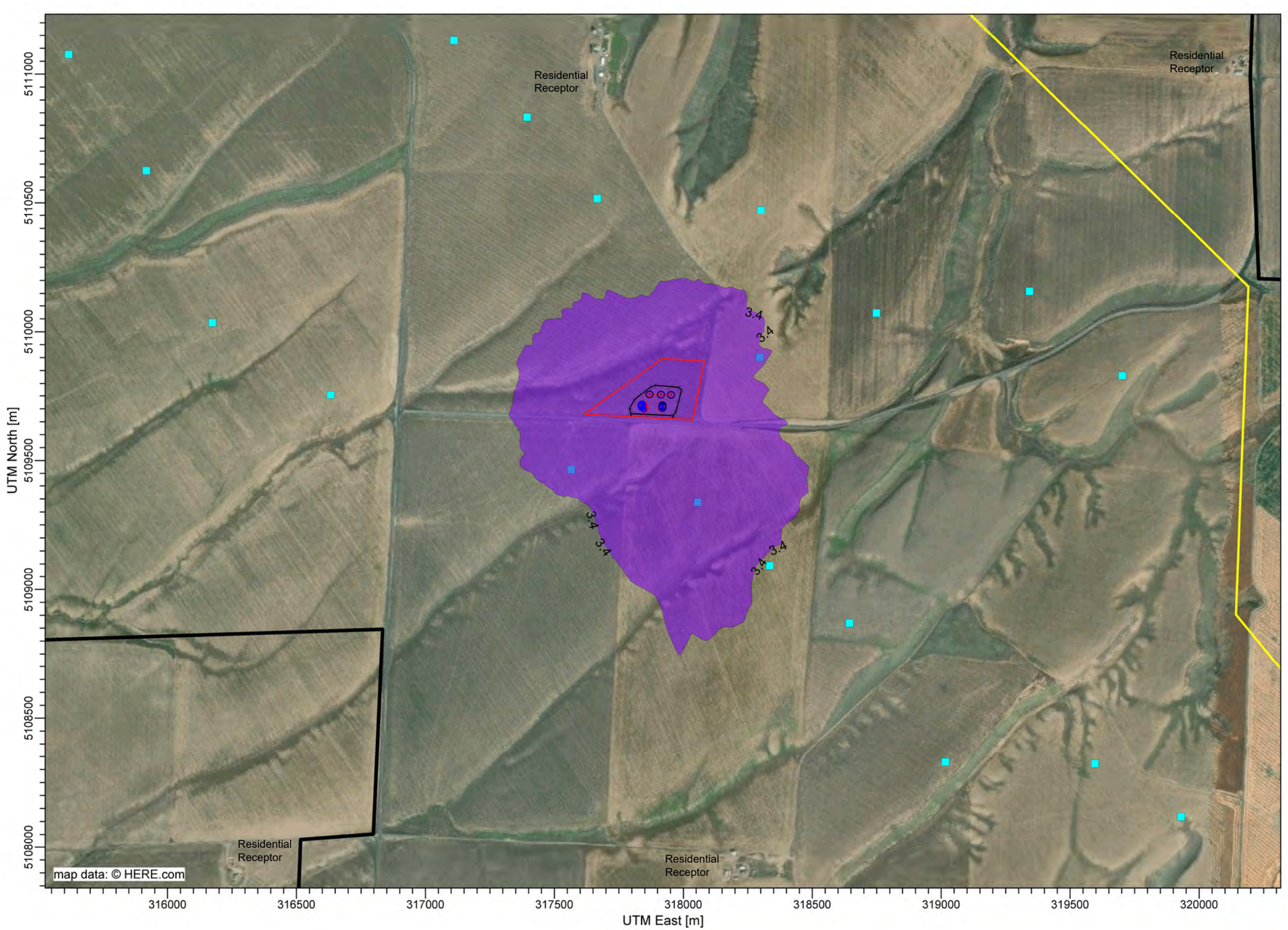
DATE:
6/12/2023

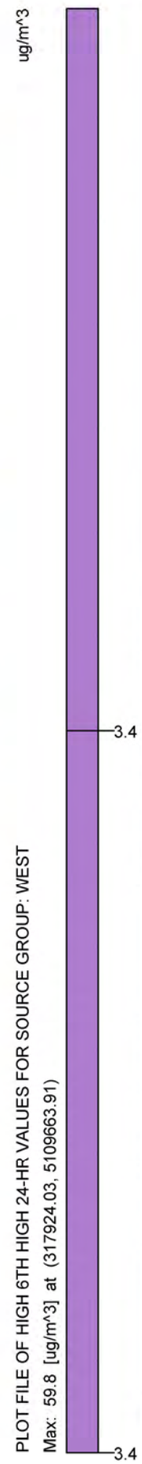
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-14
Horse Heaven - Air Quality Dispersion Modeling Evaluation
West Concrete Batch Plant (Phase 2) - 24-hour PM10





LEGEND

- Project Boundary
- Proposed Transmission Line
- Option 1 Turbine Location
- 24-hour PM10 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
59.8 ug/m^3

COMPANY NAME:

MODELER:

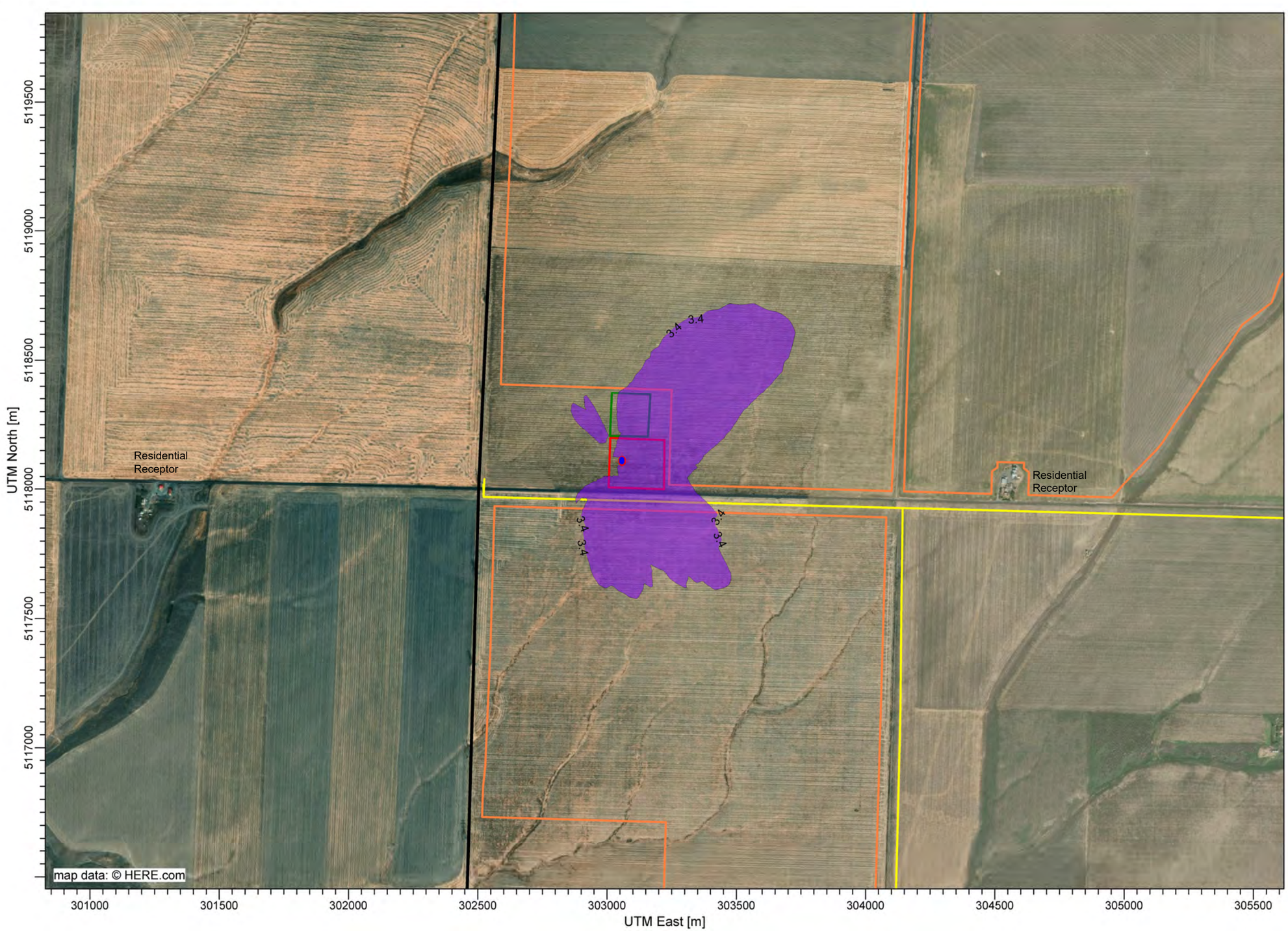
DATE:
6/12/2023

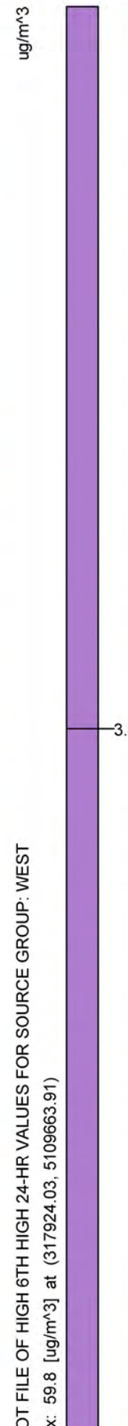
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-15
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines - West Substation - 24-hour PM10





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- 24-hour PM10 Maximum Impact Area 50% of NAAQS

SOURCES:
56

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
59.8 ug/m^3

COMPANY NAME:

MODELER:

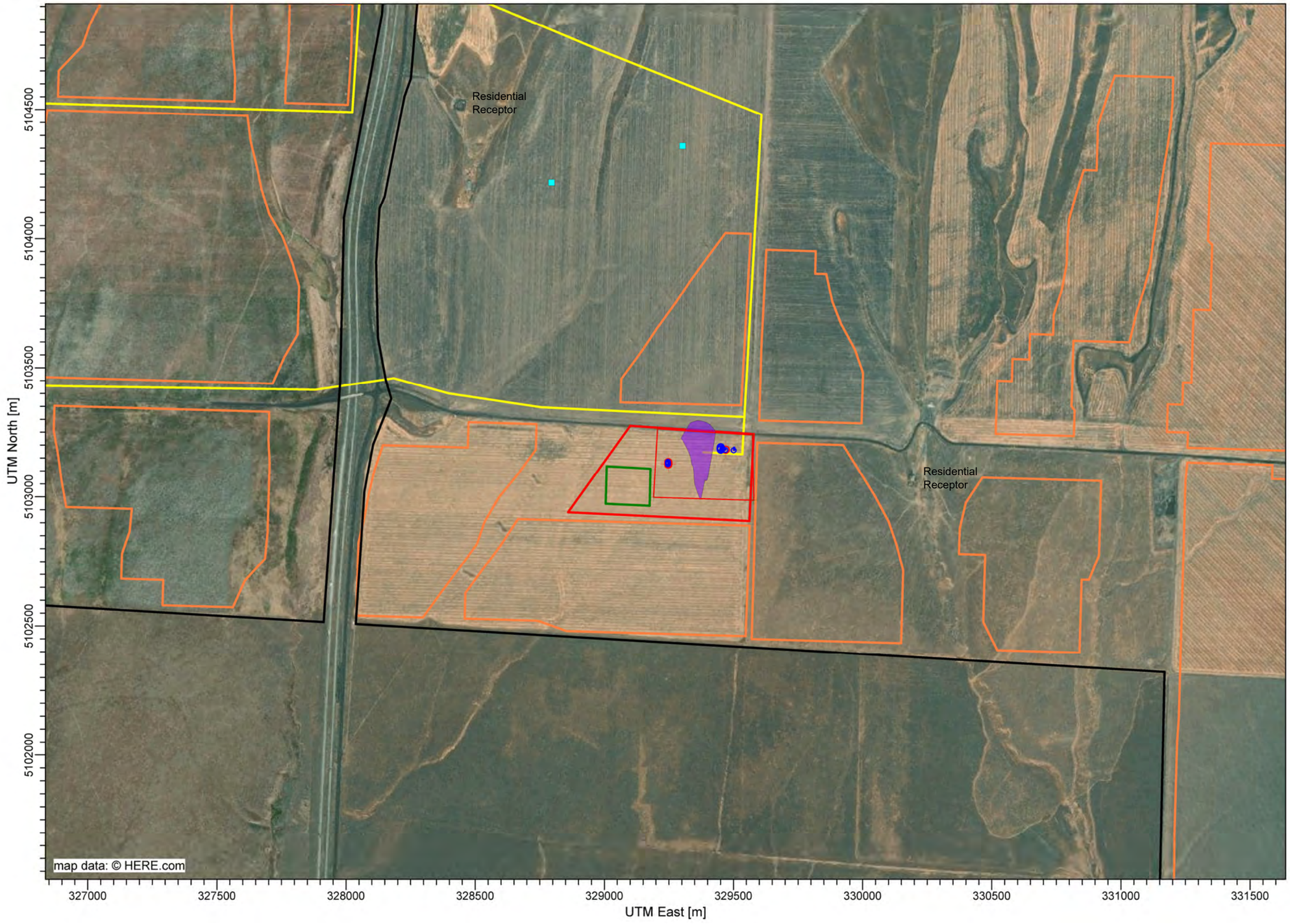
DATE:
6/12/2023

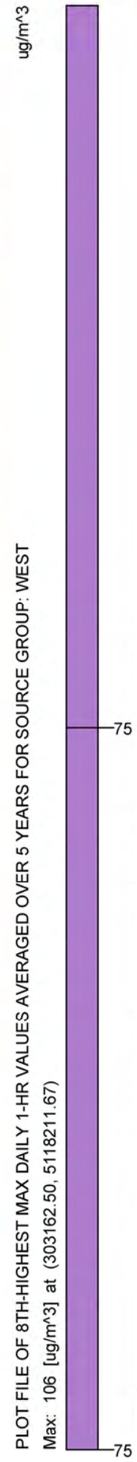
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-16
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines and East Concrete Batch Plant (Phase 1) - 1-hour NO2





LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- Option 1 Turbine Location
- 1-hour NO2 Maximum Impact Area 50% of NAAQS

SOURCES:
8

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
106 ug/m^3

COMPANY NAME:

MODELER:

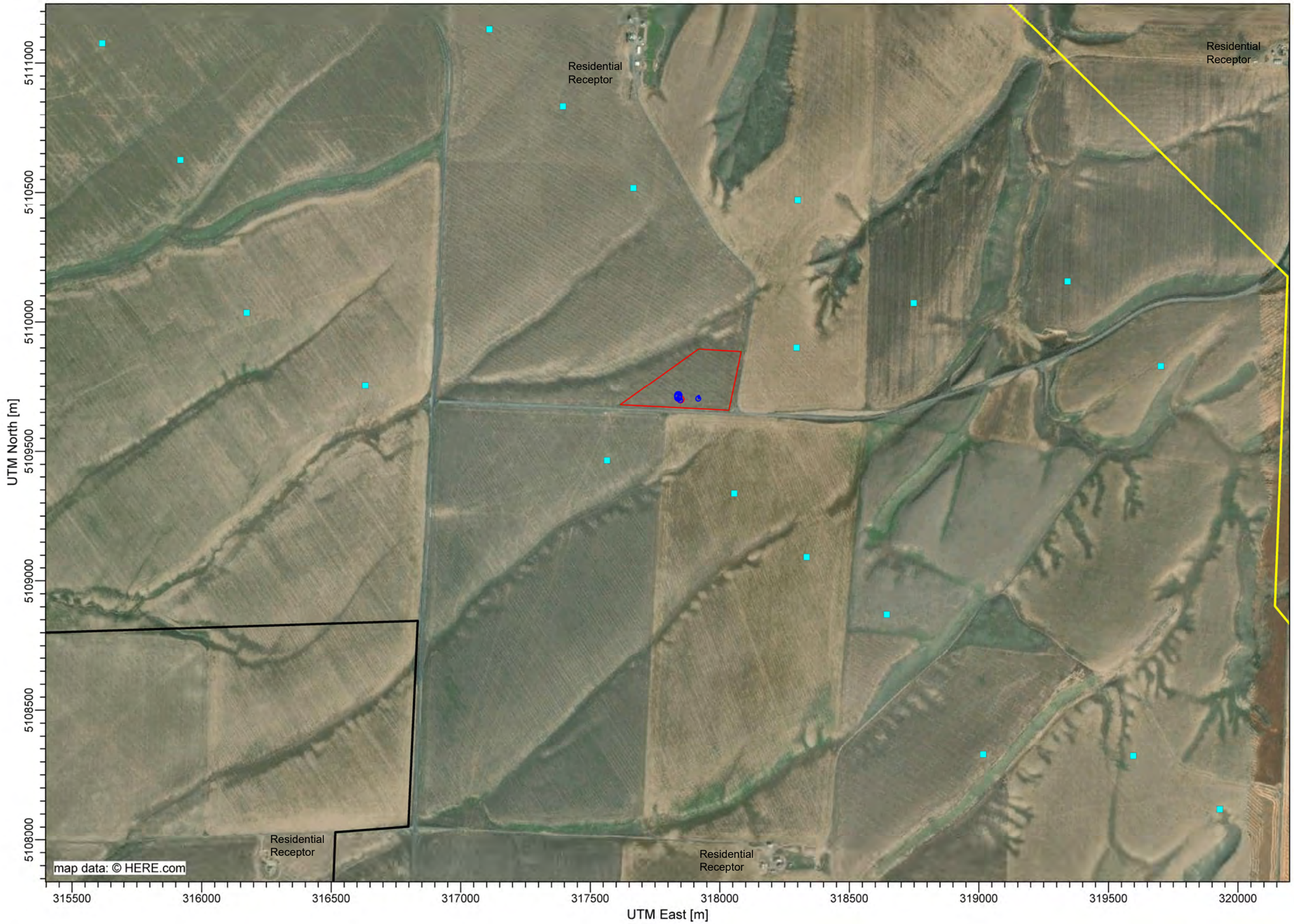
DATE:
6/12/2023

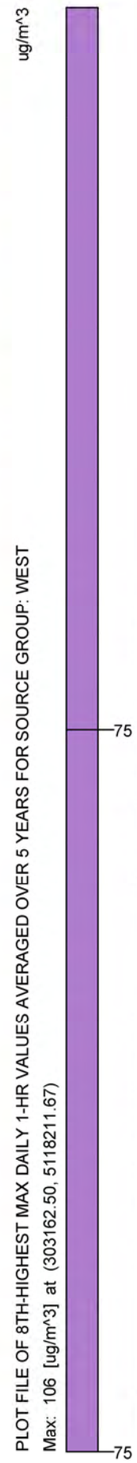
SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-17
Horse Heaven - Air Quality Dispersion Modeling Evaluation
West Concrete Batch Plant (Phase 2) - 1-hour NO2





LEGEND

- Project Boundary
- Proposed Transmission Line
- Option 1 Turbine Location
- 1-hour NO2 Maximum Impact Area 50% of NAAQS (no areas with greater than 50% of NAAQS)

SOURCES: **8**

RECEPTORS: **20275**

OUTPUT TYPE: **Concentration**

MAX: **106 ug/m^3**

COMPANY NAME:

MODELER:

DATE: **6/12/2023**

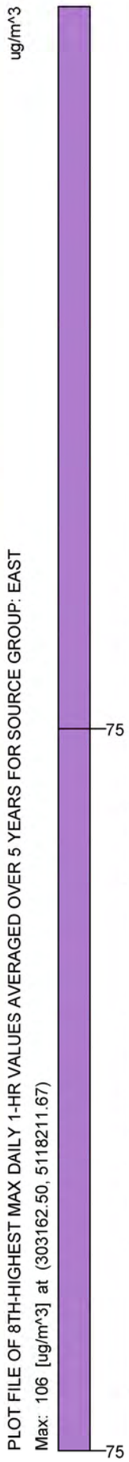
SCALE: 1:15,000

0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure C-18
Horse Heaven - Air Quality Dispersion Modeling Evaluation
Stationary Engines - West Substation - 1-hour NO2



LEGEND

- Project Boundary
- Solar Siting Area
- Proposed BESS
- Proposed Substation
- Proposed Transmission Line
- 1-hour NO2 Maximum Impact Area 50% of NAAQS

SOURCES:
8

RECEPTORS:
20275

OUTPUT TYPE:
Concentration

MAX:
106 ug/m^3

COMPANY NAME:

MODELER:

DATE:
6/12/2023

SCALE: 1:15,000
0 0.4 km

PROJECT NO.:

AERMOD View - Lakes Environmental Software

APPENDIX 4.6-1

GAL 2022 Wind Turbine Wildlife Collision Risk Assessment

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GOLDER
MEMBER OF WSP

REPORT

Wind Turbine Wildlife Collision Risk Assessment

Horse Heaven Wind Farm

Submitted to:

Horse Heaven Wind Farm, LLC

5775 Flatiron Parkway, Suite 120
Boulder, CO 80301

Submitted by:

Golder Associates Ltd.

Suite 200 - 2920 Virtual Way, Vancouver, British Columbia, V5M 0C4, Canada

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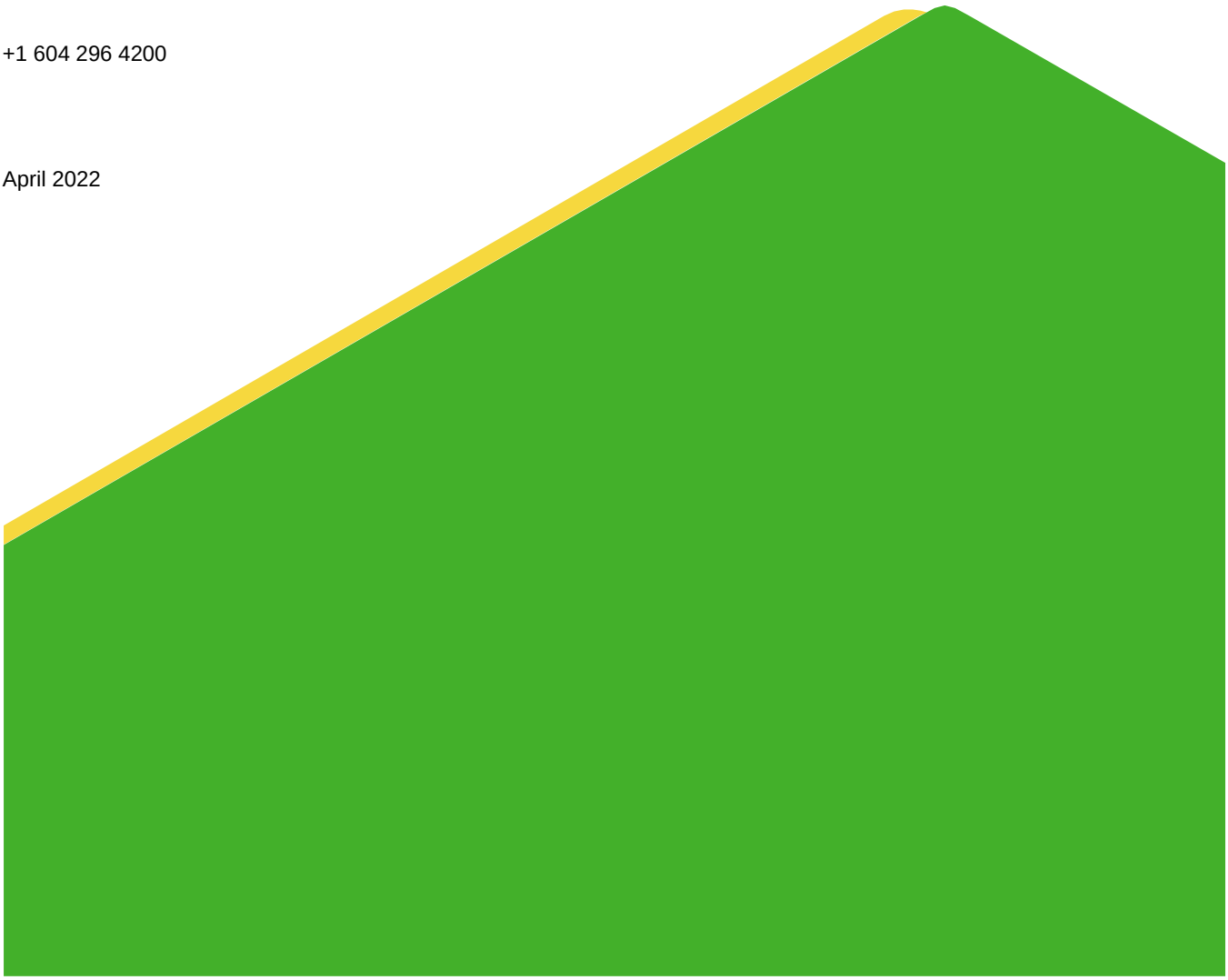
April 2022



Executive Summary

Horse Heaven Wind Farm, LLC (the Applicant) is proposing to develop the Horse Heaven Wind Farm (the Project) in Benton County, Washington. The Applicant is considering two general turbine options comprising four different turbine technologies. The four turbine technologies presented in the Application for Site Certification are examples of available technologies and are not prescriptive of what might be available at the time of construction. Under Option 1, turbines would be shorter and have a smaller rotor diameter than under Option 2. Option 2 would involve fewer turbines because each turbine would have a higher energy production capability. This special study report compares the potential bird and bat collision risk associated with each turbine option based on existing information collected during baseline studies conducted for the Project and a review of published scientific literature pertaining to bird and bat interactions with wind turbines.

Baseline studies conducted by the Applicant considered in this special study report are avian use surveys (AUS) and acoustic bat surveys. AUS were conducted for the Project and used to determine a relative index of bird exposure, which is a relative measure of species-specific risk to turbine collisions that considers each species' local abundance, proportion of observations in flight, and observed flight heights. Exposure indices are available for eight special status bird species and were compared between turbine technologies to evaluate relative collision risk.

Acoustic bat surveys were conducted by the Applicant to estimate bat activity levels within the Project area during the known regional period of bat activity. Acoustic detectors were deployed at four sites in and around the Project Lease Boundary with paired microphones placed near ground level and approximately 148 feet (45 m) above ground level on a meteorological tower. Eight bat species were documented during acoustic bat surveys in and around the Lease Boundary. Most recorded bat passes were produced by three low-frequency bat species: silver-haired bat *(Lasionycteris noctivagans)*, hoary bat *(Lasiurus cinereus)*, and big brown bat *(Eptesicus fuscus)*.

The literature review suggests that the effect of turbine height and rotor swept area on bird collision mortalities remains uncertain (AWWI 2021). Some studies did not find a relationship between bird mortality rates and turbine height (Everaert 2014; Barclay et al. 2007; Krijgsveld et al. 2009). Other studies report higher bird mortality rates at taller turbines on a per turbine basis (Loss et al. 2013; De Lucas et al. 2008, Thelander et al. 2003) but lower mortality rates per unit of energy generation (Thaxter et al. 2017), although this is not unequivocal (Huso et al. 2021). Nevertheless, replacing several small turbines with fewer larger turbines has been hypothesized to reduce bird collision risk, particularly for raptors (Arnett and May 2016; Dahl et al. 2015; Thaxter et al. 2017).

Collision with turbines is considered one of the greatest threats to bats in North America (O'Shea et al. 2016). Three species of migratory tree-roosting bats (i.e., eastern red bat *[Lasiurus borealis]*, silver-haired bat, hoary bat) make up most bat mortalities resulting from turbine collision, raising concerns about population-level impacts as the number of wind farms increases (Barclay et al. 2007; Zimmerling and Francis 2016; Hein and Schirmacher 2016). However, there is limited and conflicting information about the effect of turbine height on bat collision mortalities. Some studies report that bat mortality rates increase with turbine size (Baerwald and Barclay 2009), including on a per megawatt (MW) basis (Barclay et al. 2007), while others report no effect (Huso et al. 2021), the opposite effect (Fielder et al. 2007), or that mortality rates increase on either side of an optimum intermediate turbine size (Thaxter et al. 2017).

The following provides a summary of anticipated wildlife collision risk associated with the two turbine options based on information collected during baseline studies and a review of available published scientific literature:

- Based on AUS data:
  - Mean exposure indices for small bird species were highest at the GE 3.03-MW turbines (Option 1) and similar across the three other turbine technologies. Therefore, Option 1 is expected to result in a greater number of small bird mortalities.
  - Among large bird species, exposure indices for raptors were higher for shorter turbines (Option 1), but exposure indices for waterfowl were higher at taller turbines (Option 2). It is expected that the option requiring a greater number of shorter turbines (Option 1) would result in more large bird mortalities because raptors appear more susceptible to turbine collisions than waterfowl (AWWI 2021).
  - Option 1 is expected to result in greater collision risk for six of the eight special status bird species observed during AUS (ferruginous hawk *[Buteo regalis]*, golden eagle *[Aquila chrysaetos]*, prairie falcon *[Falco mexicanus]*, tundra swan *[Cygnus columbianus]*, American white pelican *{Pelecanus erythrorhycnhos]*, great blue heron *[Ardea herodias]*). Exposure indices were highest for Option 2 technologies for two special status bird species (sandhill crane *[Grus canadensis]*, bald eagle *[Haliaeetus leucocephalus]*), but it is uncertain to what degree this may be offset by fewer turbines.
- Based on a literature review, the weight of evidence suggests that per unit of energy output, a wind farm layout with fewer larger turbines (i.e., Option 2) is likely to have fewer total bird mortalities than one with a greater number of smaller turbines (i.e., Option 1).
- The relationship between turbine height and bat collision mortalities is too inconclusive to make confident predictions regarding which turbine option is expected to result in fewer bat mortalities.

It is important to acknowledge that there is uncertainty associated with these conclusions related to conflicting results in available published scientific studies, lack of studies at turbines within the range of heights considered for the Horse Heaven Wind Farm, and potential for substantial variability in wildlife mortality based on local factors (e.g., bird abundance, species composition, topography, habitat, spatial arrangement of turbines). These sources of uncertainty limit the confidence of predicted wildlife mortality risk associated with the two turbine options.

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APPENDIX A
Species-specific Exposure Indices from Avian Use Studies

1.0 INTRODUCTION

Horse Heaven Wind Farm, LLC (the Applicant) is proposing to develop the Horse Heaven Wind Farm (the Project) in Benton County, Washington. The Applicant is considering two general turbine options comprising four different turbine technologies to facilitate flexible turbine siting (Table 1). The turbine technologies are examples of available technologies and are not prescriptive of what might be available at the time of construction. Under Option 1, turbines would be shorter and have a smaller rotor diameter than under Option 2. Option 2 would involve fewer turbines because each turbine would have a higher energy production capability. Golder Associates Ltd. (Golder) was retained to complete this special study report comparing the potential bird and bat collision risk associated with each turbine option.

2.0 METHODS

Each turbine option has two possible turbine technologies (see Table 1). The specifications for each type served as the basis for evaluating bird and bat collision risk associated with Option 1 and Option 2.

Table 1: Potential Turbine Specifications

Turbine Parameters/Features	Turbine Option 1		Turbine Option 2	
	GE 2.82 MW Turbine	GE 3.03 MW Turbine	GE 5.5 MW Turbine	SG 6.0 MW Turbine
Tower Type	Tubular	Tubular	Tubular	Tubular steel / hybrid
Maximum Number of Turbines Considered	244	244	150	150
Turbine Rotor Diameter	127 m / 417 ft	140 m / 459 ft	158 m / 518 ft	170 m /557 ft
Turbine Hub Height (ground to nacelle)	89 m / 292 ft	81 m / 266 ft	125 m / 411 ft	113 m / 377 ft
Maximum Total Height (ground to blade tip)	152 m / 499 ft	151 m / 496 ft	204 m / 671 ft	200 m / 657 ft
Tower Base Diameter	4.6 m / 15.1 ft	4.6 m / 15.1 ft	4.6 m / 15.1 ft	4.7 m / 15.5 ft

Source: Table 2.3-1 of the Application for Site Certification (Horse Heaven Wind Farm, LLC 2021)
ft = feet; GE = General Electric; MW = megawatts; m = meters; SG = Siemens Gamesa

Bird and bat collision risk associated with the two general turbine options was evaluated based on site-specific information collected during baseline studies conducted for the Project and presented in the Application for Site Certification (ASC) to the Washington Energy Facility Site Evaluation Council (Horse Heaven Wind Farm LLC, 2021), in combination with a review of published scientific literature pertaining to bird and bat interactions with wind turbines.

2.1 Baseline Studies

The following sections provide an overview of baseline studies conducted for the Project and how those data were used in this special study report. For detailed information related to baseline wildlife studies, refer to Section 3.4.1.3 of the ASC and Appendices K and M to the ASC (Horse Heaven Wind Farm, LLC 2021).

2.1.1 Avian Use Surveys

Avian use surveys (AUS) were conducted for the Project from 2017 to 2020 to document temporal and spatial use of the Lease Area by small and large bird species. AUS consisted of 10-minute, 100-meter (m) circular plot point counts for small birds and 60-minute, 800-m circular plot point counts for large birds. During both survey methodologies, biologists recorded the bird species observed, number of individuals, distance, flight height and direction, and habitat types.

Data from AUS conducted during all years, survey areas, and seasons were aggregated to calculate a relative index of bird exposure, *R*, which is a relative measure of species-specific risk of turbine collision, using the following formula:

$$R = A \times P_f \times P_t$$

- *A* equals the mean relative use (i.e., average number of observations per survey plot) for a particular species (i.e., species *i*). Mean relative use was calculated by summing the total number of observations within each plot during a visit, then averaging across all survey plots within each visit, followed by averaging across visits within each season, and finally averaging seasonal values weighted by the number of days in each season;
- P_f equals the proportion of all observations of species *i* where activity was recorded as flying; and
- P_t equals the proportion of all initial flight height observations of species *i* within the rotor swept height for the proposed turbine.

The exposure index provides a relative measure of species-specific collision risk with a wind turbine at the Project based on their local abundance, proportion of flying observations, and flight heights. The exposure index can also be used to compare relative collision risk for a particular species between turbines with different rotor swept zones. A greater exposure index value represents higher collision risk. For example, a species with an exposure index of 0.20 is ten times more likely to be exposed to collision with a wind turbine than a species with an exposure index of 0.02. However, the exposure index is not directly translatable to the number of bird mortalities. This is partly because it does not take into consideration habitat selection, flight movements relative to proposed turbine siting, or species-specific ability to detect and avoid turbines.

Exposure indices for Option 1 and Option 2 turbine technologies were compared to evaluate bird collision risk. However, the relative index of exposure does not consider the number of turbines required for each option. If the exposure index for Option 1 technologies is greater than for Option 2 technologies, it was assumed that the overall collision risk for Option 1 is also greater because it consists of a larger number of turbines. However, the opposite does not necessarily hold true. If the exposure index for Option 2 technologies is greater than Option 1 technologies, collision risk could still be offset by fewer turbines, depending on the magnitude of the differences in the exposure indices and the number of turbines. Unfortunately, there is no clear mathematical relationship between the exposure index and number of turbines. Therefore, assessment of mortality risk based on exposure indices was evaluated qualitatively.

2.1.2 Acoustic Bat Surveys

The objective of acoustic bat surveys was to estimate bat activity levels within the Project area during the known regional period of bat activity. Acoustic surveys were conducted at four sites in and around the Project Lease Boundary from August through October in 2017 and from May through October in 2018 using a combination of Anabat SD2 Active Bat Detector and Wildlife Acoustic Song Meter SM3 full-spectrum acoustic detectors. At each

site, one microphone was deployed near ground level, at approximately 5 feet (1.5 m) above ground level, and another was raised on the same meteorological tower to approximately 148 feet (45 m) above ground level. Three detector sites were in grassland habitat and one detector site was in shrub-steppe habitat. Bat activity recorded at detectors was summarized as the number of total passes, as well as passes by high-frequency (>30 kilohertz [kHz]) and low-frequency (<30 kHz) bat groups.

The relationship between pre-construction bat acoustic activity and post-construction bat mortality rates at wind farms has been debated in scientific literature (Hein et al. 2013). Based on an analysis of paired pre- and post-construction studies from 49 wind farms in the United States and Canada, Solick et al. (2020) found that pre-development bat activity rates did not predict bat mortality rates during operation. A possible explanation for the lack of a predictive relationship is that some bat species may be attracted to wind turbines as hypothesized by several studies (AWWI 2021; Arnett and May 2016; Guest et al. 2022). There is uncertainty around the causes of attraction and information at the species-level is limited (Guest et al. 2022). Therefore, information from acoustic bat surveys was primarily used to focus the literature review on bat species present within the Project Lease Boundary instead of attempting to use pre-construction bat activity as a predictor of bat mortality.

3.0 RESULTS

3.1 Birds

3.1.1 Avian Use Studies

Species-specific exposure indices derived from AUS are presented in Appendix A. The exposure indices represent relative collision risk but are not directly translatable to the number of bird mortalities due to factors such as species-specific collision avoidance.

3.1.1.1 Small Bird Species

The number of small bird species with non-zero exposure indices for each turbine technology was nine species for the GE 2.82-megawatt (MW) turbine (Option 1), 16 species for the General Electric (GE) 3.03-MW turbine (Option 1), two species at the GE 5.5-MW turbine (Option 2), and six species at the Siemens Gamesa (SG) 6.0-MW turbine (Option 2). Non-zero species-specific mean exposure indices were highest for all small bird species at the GE 3.03-MW turbines (Option 1) and similar across the three other turbine technologies. Exposure indices were generally low, ranging from 0.001 to 0.312 for all species and turbine technologies, except for horned lark (*Eremophila alpestris*) at the Option 1, GE 3.03 MW turbines (exposure index of 1.275). Based on these exposure indices, it is expected that collision risk for small bird species would be greater for Option 1 technologies, especially the GE 3.03-MW turbine, than Option 2 technologies. Because Option 1 would require a greater number of turbines than Option 2, it is also expected that small bird mortalities would be greater under Option 1 than Option 2. Studies show that, for small passerine (i.e., songbird) species, turbine-related mortalities resulting from currently developed wind farms constitute a small percentage of their total population size (<0.045%) (Erickson et al. 2014) and do not appear likely to lead to population-level impacts (AWWI 2021).

3.1.1.2 Large Bird Species

The number of large bird species with non-zero exposure indices was similar for all turbine technologies, ranging from 34 species for the GE 3.03-MW turbine (Option 1) to 29 species for the GE 5.5-MW turbine (Option 2). In general, exposure indices for raptors were higher for shorter turbines than taller turbines. Conversely, exposure indices for waterfowl (i.e., ducks, geese, and swans) were higher at taller turbines. However, mortalities of waterbirds and waterfowl are relatively infrequent at land-based wind farms, whereas diurnal raptors appear more

susceptible (AWWI 2021). Therefore, it is expected that the option requiring a greater number of shorter turbines (Option 1) would result in a greater number of large bird mortalities. Large bird species that are slow to mature and have a low reproductive rate may be more susceptible to population-level impacts from collision mortality (Watson et al. 2018). Demographic modeling suggests potential for population-level impacts for some raptor species, including ferruginous hawk *(Buteo regalis)* and golden eagle *(Aquila chrysaetos)*, based on future wind energy projections (Diffendorfer et al. 2021).

3.1.1.3 Special Status Bird Species

Conservation status of wildlife species reflects their existing population size and trends. Special status bird species are likely less resilient to population declines, and it is prudent to consider their species-specific potential for collision mortality associated with the two turbine options. For the purposes of the ASC, special status bird species were defined as species listed under the U.S. Endangered Species Act, state-listed endangered species, state-listed threatened species, state-listed sensitive species, state-listed candidate species, Washington Department of Fish and Wildlife priority species, and eagles (Horse Heaven Wind Farm LLC, 2021). Fourteen special status bird species have potential to occur within the Project Lease Boundary, with 13 species documented in the Project Lease Boundary (Horse Heaven Wind Farm LLC, 2021). Mean exposure indices from AUS conducted for the Project are available for eight special status bird species. Mean exposure indices are not available for the following six special status bird species: burrowing owl *(Athene cunicularia)*, loggerhead shrike *(Lanius ludovicianus)*, ring-necked pheasant *(Phasianus colchicus)*, sagebrush sparrow *(Artemisiospiza nevadensis)*, sage thrasher *(Oreoscoptes montanus)*, and Vaux's swift *(Chaetura vauxi).* For the eight species with data, the exposure indices for the different turbine technologies under consideration for the Project are discussed below and summarized in Table 2.

- American white pelican *(Pelecanus erythrorhycnhos)*: Exposure indices for American white pelican are similar for all turbine technologies, ranging from 0.289 for Option 1 technologies to 0.303 for Option 2 technologies (Table 2). However, the Applicant has excluded areas of the highest observed use by American white pelican from the Project Lease Boundary, which reduces the turbine collision exposure for this species. Based on the observed similarities in exposure indices across all turbine technologies, it is expected that the option requiring more turbines (Option 1) would result in greater collision risk for American white pelicans.
- Sandhill crane *(Grus canadensis)*: The exposure index for sandhill cranes for Option 1 technologies is approximately eight times less than Option 2 technologies (Table 2). Sandhill cranes have the highest mean use of the special status bird species observed during AUS. However, sandhill cranes may not be particularly susceptible to collision risk with turbines. Studies at wind facilities in other parts of the United States have shown that sandhill cranes are likely to avoid turbines despite relatively high numbers of sandhill cranes observed within and surrounding wind facilities (Nagy et al. 2012; Pearse et al. 2016).
- Ferruginous hawk: The exposure index for ferruginous hawks is approximately 1.3 times greater for the GE 3.03-MW turbine (Option 1) than for the other three turbine technologies (Table 2). AUS indicated very low mean use of the Project area by ferruginous hawks; however, breeding has been observed within 2 miles of the Lease Boundary. Because Option 1 also requires a larger number of turbines, it is expected that this option would result in greater collision risk for ferruginous hawks.
- Bald eagle *(Haliaeetus leucocephalus)*: The exposure index for bald eagles is approximately 1.1 to 1.3 times greater for Option 2 technologies than Option 1 technologies (Table 2). It is uncertain if the smaller exposure indices for Option 1 technologies would offset the larger number of turbines required.

- Golden eagle: The exposure index for golden eagles for Option 1 technologies is approximately 1.2 times greater than the GE 5.5-MW turbine (Option 2), but the same as for the SG 6.0-MW turbine (Option 2) (Table 2). Because Option 1 would also require a greater number of turbines than Option 2, it is expected to result in greater collision risk for golden eagles.
- Great blue heron *(Ardea herodias)*: Exposure indices are less than 0.001 for all turbine technologies (Table 2); therefore, the option requiring more turbines (Option 1) is expected to result in greater collision risk for great blue herons.
- Prairie falcon *(Falco mexicanus)*: Exposure indices for prairie falcons are 1.2 to 3.3 times greater for Option 1 technologies than Option 2 technologies (Table 2). Because Option 1 would also require a greater number of turbines than Option 2, it is expected to result in greater collision risk for prairie falcons.
- Tundra swan *(Cygnus columbianus)*: Exposure indices for tundra swans are 0.011 for the GE 3.03-MW turbine (Option 1) and zero at all other turbine technologies (Table 2). Because Option 1 would also require a greater number of turbines than Option 2, it is expected to result in greater collision risk for tundra swans.

Of the eight special status bird species for which exposure indices are available, exposure indices are highest for Option 1 technologies for four species (ferruginous hawk, golden eagle, prairie falcon, and tundra swan) and similar across all technologies for two species (American white pelican and great blue heron). Option 1 is expected to result in greater collision risk for these six special status species based on the combination of higher exposure indices and greater number of turbines than Option 2. Exposure indices are highest for Option 2 technologies for two special status bird species (sandhill crane and bald eagle), but it is uncertain to what degree this may be offset by fewer turbines. When interpreting these conclusions, it should be noted that exposure indices do not consider species-specific collision avoidance behavior around wind turbines.

Table 2: Exposure Indices for Special Status Bird Species

Common Name	Overall Mean Use[1]	Exposure Index			
		Option 1 (GE 2.82 MW Turbine)	Option 1 (GE 3.03 MW Turbine)	Option 2 (GE 5.5 MW Turbine)	Option 2 (SG 6.0 MW Turbine)
American white pelican	0.35	0.289	0.290	0.303	0.303
Sandhill crane	1.60	0.042	0.042	0.332	0.332
Bald eagle	0.02	0.009	0.011	0.012	0.012
Tundra swan	0.01	0	0.011	0	0
Prairie falcon	0.02	0.007	0.010	0.003	0.006
Golden eagle	0.01	0.007	0.007	0.006	0.007
Ferruginous hawk	0.01	0.003	0.004	0.003	0.003
Great blue heron	<0.01	<0.001	<0.001	<0.001	<0.001

[1] Overall mean use is the average number of observed individuals per survey plot.

GE = General Electric; MW = megawatts; SG = Siemens Gamesa

3.1.2 Literature Review

The effect of turbine height and rotor swept area on bird collision mortalities remains uncertain (AWWI 2021). It is possible that local factors at wind farms (e.g., bird abundance, species composition, topography, habitat, spatial arrangement of turbines) can lead to strong variation in bird mortality rates that confound possible effects of turbine size (Marques et al. 2014; Everaert 2014). Turbine size has been suggested as an important factor for collision risk because higher turbines may extend into the airspace traveled by migrating birds and higher turbines typically have a larger rotor swept zone and consequently a larger collision risk area. However, the relationship between turbine heights and bird mortality rates is not consistent among studies.

Some studies report higher bird mortality rates per turbine at taller turbines. Bird collision mortality modeled by Loss et al. (2013) predicted that mortality rates would increase nearly tenfold from 0.64 to 6.20 birds per turbine across the range of turbine heights included in their study, which was 118 to 262 feet (36 to 80 m). De Lucas et al. (2008) found a positive relationship between turbine height and mortality rate of raptors (i.e., more fatalities at taller turbines) at two wind farms in Spain where turbine heights ranged from 59 to 118 feet (18 to 36 m). A similar positive relationship was observed at Altamont Pass, California, where the number of bird mortalities at turbines with larger rotor diameters and rotors 79 feet (24 m) above ground was more than expected based on the number of turbines alone (Thelander et al. 2003). Thaxter et al. (2017) noted that bird mortality rates increased with larger turbine capacity (megawatts).

Other studies did not find a relationship between bird mortality rates and turbine height. Bird mortality rate and collision risk were not significantly related to turbine size at eight wind farms in Belgium, where turbine characteristics ranged from 75 to 322 feet (23 to 98 m) hub height and 112 to 456 feet (34 to 139 m) maximum total height (i.e., blade tip) (Everaert 2014). Barclay et al. (2007) compiled wind turbine and bird and bat mortality data from 33 wind farms in North America to assess the influence of turbine characteristics on collision risk. Turbine characteristics varied among sites, with rotor diameters ranging from 59 to 295 feet (18 to 90 m) and turbine hub heights ranging from 78 to 308 feet (24 to 94 m). They found that turbine height and rotor diameter did not influence bird mortality rate. The authors suggested that because a significant proportion of bird mortalities at wind farms occur during the day, the ability of birds to detect and avoid turbines may not vary with turbine size (Barclay et al. 2007). Krijgsveld et al. (2009) found that bird collision risk with larger multi-MW turbines (hub height 220 to 256 feet [67 to 78 m]; rotor diameter 217 feet [66 m]) was similar to earlier generation turbines and suggested that the increased altitude of turbine blades may allow more local birds (i.e., birds not undertaking migratory flight) to pass underneath the rotor area, while greater spacing between larger turbines may allow birds to pass between turbines. Further, mortality rates could also be related to rotation speed of the rotors (Krigjsveld et al. 2009). Large rotors rotate at lower speeds than small ones, which reduces the probability that birds flying through the rotor swept area will be hit (Orfloff and Flannery 1996). Tucker (1996) demonstrated mathematically that collision risk is higher closer to the hub than at the rotor tip and does not increase linearly with the surface area of the rotor swept zone.

Bird mortality rates may be lower at taller turbines per unit of energy generation, however results are not unequivocal. Although Thaxter et al. (2017) noted a strong positive relationship between wind turbine capacity (i.e., MW) and bird collision rate per turbine, the strength of this relationship was offset by the reduced number of turbines required per unit of energy generation. A greater number of small turbines resulted in higher predicted bird mortality rates than a smaller number of large turbines per unit energy output (Thaxter et al. 2017). Thaxter et al. (2017) concluded that wind farm generation capacity should be met by deploying fewer large turbines, rather than many smaller ones. However, they modeled turbines with a capacity range of 0.1 to 2.5 MW, which is lower

than those considered for the Horse Heaven Wind Farm, and the number of estimated bird mortalities decreased exponentially up to 1.2 MW, but only slightly thereafter to 2.5 MW (Thaxter et al. 2017). Further, such results are not unequivocal. Huso et al. (2021) found that bird mortality rate was constant per unit of energy produced, a metric that accounts for turbine operating time, across all sizes and spacing of turbines at a repowered wind farm in California.

Replacing several small turbines with fewer larger turbines (i.e., repowering) has been hypothesized to reduce bird collision risk, particularly for raptors (Arnett and May 2016; Dahl et al. 2015; Thaxter et al. 2017). For example, repowering of the 20.5 MW Diablo Winds Energy Project in California from 105 150-kilowatt (kW) and 25 250-kW turbines to 38 of the larger 660-kW turbines decreased raptor mortalities per MW per year by 54% (Smallwood et al. 2009). When a wind farm in Sweden was repowered from 58 to 28 turbines that produced four times the amount of energy, the number of bird mortalities per turbine per year was 1.77 times greater, but this was offset by the reduced number of turbines and the total bird mortalities decreased by 19%, while the bird mortality rate per MW decreased by 80% (Hjernquist 2014 as cited in Dahl et al. 2015). Dahl et al. (2015) predicted a reduction in collision risk of 29% and 68% for white-tailed eagles at a wind farm in Norway if 68 2-MW turbines were repowered to 50 3-MW or 30 5-MW turbines, respectively. The reduced risk was attributed to fewer turbines and better individual siting (Dahl et al. 2015).

In summary, there is conflicting research regarding whether turbine size influences bird mortality rates, but the weight of evidence suggests that per unit of energy output, a wind farm layout with fewer larger turbines (i.e., Option 2) may have fewer total bird mortalities than one with a greater number of smaller turbines (i.e., Option 1). Some studies report no significant relationship between bird mortality rates and turbine size (Everaert 2014; Barclay et al. 2007; Krijsveld et al. 2009), while others report higher mortality rates with larger turbines (Loss et al. 2013; Dahl et al. 2015; De Lucas et al. 2008; Thelander et al. 2003; Thaxter et al. 2017). Even with a positive relationship between turbine size and mortality rates, it appears that the increased number of mortalities per turbine may be offset by fewer mortalities as a result of fewer turbines (e.g., Thaxter et al. 2017; Hjernquist 2014 as cited in Dahl et al. 2015).

There are several important limitations and sources of uncertainty related to this conclusion. Existing available information is derived from studies at wind farms with shorter turbines than those considered for the Project under either option. Notably, none of the studies reviewed during this literature review included turbines as tall as those considered under Option 2 (i.e., 410 feet [125 m] hub height). It is possible that a different relationship between turbine height and bird mortality rate may exist at turbine heights beyond the range considered in published literature. Additionally, relatively few studies have been completed at repowered wind farms; those that have been completed examined changes in bird mortality rates from replacing smaller old-generation turbines with fewer, larger, newer turbines (e.g., Smallwood et al. 2010). It is uncertain if similar differences in bird mortality rates would exist between two wind farm layouts with substantially larger turbines such as those considered under the two options for the Project. Finally, measuring impacts of repowering can be confounded by variability in space, time, and operational constraints (Huso et al. 2021), making it difficult to extrapolate results from one wind farm to another.

3.2 Bats

3.2.1 Acoustic Bat Surveys

The average number of bat passes per night recorded during acoustic bat surveys ranged from 0.27 to 1.12 among the study areas and survey years for which bat surveys were conducted for the Project (Table 3). Eight bat

species were documented during acoustic bat surveys in and around the Lease Boundary (Table 3). No federal or state-listed bat species were detected. Most recorded bat passes were produced by three low-frequency bat species: silver-haired bat *(Lasionycteris noctivagans)*, hoary bat *(Lasiurus cinereus)*, and big brown bat *(Eptesicus fuscus)* (Table 4). The documented period of peak bat activity in and around the Lease Boundary occurred during September at all stations.

Table 3: Summary of Acoustic Bat Survey Results

Survey Year / Type	Horse Heaven West 2017	Horse Heaven West 2018	Horse Heaven West 2018[(a)]	Horse Heaven East 2018[(b)]
Survey Dates	19 Aug–30 Oct	14 May–29 Oct	14 May–29 Oct	11 May–29 Oct
No. of Stations	1	1	1	2
No. of Detectors	1	2	2	4
Detector Nights	72	303	344	670
Total Bat Passes	24	82	384	734
Number of High-Frequency (>30 kHz) Bat Passes	2	1	24	55
Number of Low-Frequency (<30 kHz) Bat Passes	22	81	360	679
Average Number of Bat Passes per Night	0.33 ± 0.08	0.27 ± 0.05	1.12 ± 0.13	1.09 ± 0.11

[(a)] Formerly Badger Canyon Wind Project

[(b)] Formerly Four Mile Wind Project

Source: Table 3.4-6 of the Application for Site Certification (Horse Heaven Wind Farm, LLC 2021)

Table 4: Bat Species Present by Study Phase

Common Name	Scientific Name	Number of Nights Present (Percentage of Nights Present)		
		Horse Heaven West 2017 & 2018	Horse Heaven West 2018[(a)]	Horse Heaven East 2018[(b)]
High-Frequency Group (>30 kHz)				
California bat	*Myotis californicus*	0 (0%)	0 (0%)	1 (<1%)
Canyon bat	*Parastrellus hesperus*	3 (<1%)	9 (3%)	11 (2%)
Little brown bat	*Myotis lucifugus*	0 (0%)	2 (1%)	8 (1%)
Long-legged bat	*Myotis volans*	0 (0%)	0 (0%)	2 (<1%)
Western long-eared bat	*Myotis evotis*	0 (0%)	0 (0%)	1 (<1%)

Common Name	Scientific Name	Number of Nights Present (Percentage of Nights Present)		
		Horse Heaven West 2017 & 2018	Horse Heaven West 2018[a]	Horse Heaven East 2018[b]
Low-Frequency Group (<30 kHz)				
Big brown bat	*Eptesicus fuscus*	8 (2%)	19 (6%)	31 (5%)
Hoary bat	*Lasiurus cinereus*	13 (3%)	47 (14%)	91 (14%)
Silver-haired bat	*Lasionycteris noctivagans*	55 (15%)	81 (24%)	169 (25%)
Total Number of Detector Nights		**375**	**344**	**670**

[a] Formerly Badger Canyon Wind Project

[b] Formerly Four Mile Wind Project

Source: Table 3.4-7 of the Application for Site Certification (Horse Heaven Wind Farm, LLC 2021)

kHz = kilohertz

3.2.2 Literature Review

Collision with turbines is considered one of the greatest threats to bats in North America (O'Shea et al. 2016). Post-construction monitoring studies at wind farms show that migratory tree-roosting bat species (e.g., eastern red bat *[Lasiurus borealis]*, hoary bat, and silver-haired bat) compose approximately 72% of reported bat fatalities and occur mostly during fall migration (August to September) (AWWI 2018). Based on data from 52 wind farms in Washington, hoary and silver-haired bats made up 52% and 44% of reported bat mortalities (WEST 2019). In Washington, mortality estimates from 13 wind farms had a median adjusted mortality rate of 1.4 bats/MW/year (range 0.4 to 2.5 bats per MW per year) (WEST 2019). The bat fatality rate at the nearby Nine Canyon Wind Project was 2.47 bats per MW per year and consisted entirely of hoary and silver-haired bats (Horse Heaven Wind Farm, LLC 2021). The ASC predicted that bat mortalities during operation of the Project (Horse Heaven Wind Farm, LLC 2021) would:

- be within the range of other facilities in Washington
- consist primarily of migratory, tree-roosting species (e.g., silver-haired bat, hoary bat)
- occur mainly in the fall

Considering that only three species make up most bat mortalities resulting from turbine collision, population-level impacts to these species may become an issue as the number of wind farms increases (Barclay et al. 2007; Zimmerling and Francis 2016; Hein and Schirmacher 2016). Demographic modeling suggests that mortality from wind turbines may drastically reduce population size of the hoary bat and increase its risk of extinction (Frick et al. 2017). The qualitative conclusions are likely broadly informative about the relative risk to other migratory bat species that share similar life histories and high fatality rates at wind turbines, such as silver-haired bat (Frick et al. 2017). The potential for population-level consequences for some bat species from wind farm development across North America highlights the importance of considering them as priority species for mitigation measures. However, the effect of turbine height and rotor swept area on bat collision mortalities remains uncertain (AWWI 2021).

Some studies report that bat mortality rates increase with turbine size (Baerwald and Barclay 2009), including on a per MW basis (Barclay et al. 2007). A study conducted at nine wind farms in southern Alberta, where turbine heights ranged from 164 to 276 feet (50 to 84 m), found that bat mortality rates increase with turbine height (Baerwald and Barclay 2009). That study also found that the interaction between migratory bat activity at 98 feet (30 m) above ground level and turbine height was an important predictor of bat mortality rates (Baerwald and Barclay 2009). Modeling predicted that sites with high activity but relatively short turbines had low mortality rates, as did sites with low activity but tall turbines. At sites with little migratory bat activity, mortality rates were predicted to be low regardless of turbine height. However, at sites with high bat activity, an increase in turbine height also increases the mortality rate (Baerwald and Barclay 2009). Barclay et al. (2007) compiled wind turbine and bat mortality data from 33 wind farms in North America to assess the influence of turbine characteristics on collision risk. Turbine characteristics varied across sites, with rotor diameters ranging from 59 to 295 feet (18 to 90 m) and turbine hub height ranging from 78 to 308 feet (24 to 94 m). They found that rotor diameter did not influence bat mortality rate, but turbine (i.e., hub) height did. Fatality rates of bats were relatively low at short turbines (< 213 feet [65 m] high) but increased exponentially with turbine height. The highest bat fatality rates occurred at turbines with towers 213 feet (65 m) or taller and increased with MW capacity per turbine (Barclay et al. 2007). Barclay et al. (2007) concluded that replacing several small turbines (each with low power output) with one large one (with higher power output) may help reduce bird fatalities but is likely to increase the number of bats killed per megawatt of installed capacity. They also suggested that taller turbines reach the airspace used by migrating bats and that minimizing turbine height may help minimize bat fatalities (Barclay et al. 2007). Radar studies indicate that nocturnal migrants fly at heights ranging from <328 feet (100 m) to >0.61 miles (1 kilometer) (Barclay et al. 2007), noting that radar cannot distinguish between bats and birds.

Some studies report lower bat mortality rates at taller turbines on a per MW basis (Fielder et al. 2007) or suggest that bat mortality rates increase on either side of an optimum intermediate turbine size (Thaxter et al. 2017). Although bat mortality estimates at a wind farm in Tennessee were greater on a per turbine basis at larger 1.8-MW turbines (V80 turbine with a height of 256 feet [78 m] and rotor diameter of 276 feet [84 m]) than at smaller 0.66-MW turbines (V47 turbine with a height of 213 feet [65 m] and rotor diameter of 151 feet [46 m]), when mortality was measured per MW, the smaller V47 turbines had a greater mortality rate (53.3 bats/MW/year) than the larger V80 turbines (38.7 bats per MW per year) (Fiedler et al. 2007). Thaxter et al. (2017) suggest that for bats, an optimum turbine size of approximately 1.25 MW may minimize collision risk. Their models indicated that per unit of energy output at a hypothetical 10-MW wind farm, using one thousand 0.01-MW turbines resulted in the largest estimated number of bat mortalities. Thereafter, the numbers decreased exponentially up to approximately 1.2 MW, but then increased again from 14 bats with 1.2-MW turbines, to 24 bats with 2.5-MW turbines. However, the authors cautioned that model certainty was low and more research was required to understand the relationship between collision risk and turbine size for larger turbines (Thaxter et al. 2017).

Overall, the relationship between turbine height and bat collision mortalities is too inconclusive to make confident predictions regarding which turbine option is expected to result in fewer bat mortalities. There is limited and conflicting information about the effect of turbine height on bat collision mortalities. Some studies report that bat mortality rates increase with turbine size (Baerwald and Barclay 2009), including on a per MW basis (Barclay et al. 2007), while others report no effect (Huso et al. 2021), the opposite effect (Fielder et al. 2007), or that mortality rates increase on either side of an optimum intermediate turbine size (Thaxter et al. 2017). Extrapolating results from these studies to the Horse Heaven Wind Farm is further limited by the range of turbine heights analyzed, which are shorter than those under consideration for the Project under either option. It is

possible that a different relationship between turbine height and bat mortality rate may exist at turbine heights beyond the range considered in available published literature.

4.0 CONCLUSION

This special study report contains supplemental information regarding potential bird and bat collision risk between the two turbine options considered for the Project for use in the Energy Facility Site Evaluation Council's evaluation of impacts within the Environmental Impact Statement. The following provides a summary of anticipated wildlife collision risk associated with the two turbine options based on information collected during baseline studies and a review of available published scientific literature:

- Based on AUS data:
  - Mean exposure indices for small bird species were highest at the GE 3.03-MW turbines (Option 1) and similar across the three other turbine technologies. Therefore, Option 1 is expected to result in a greater number of small bird mortalities.
  - Among large bird species, exposure indices for raptors were higher for shorter turbines (Option 1), but exposure indices for waterfowl were higher at taller turbines (Option 2). It is expected that the option requiring a greater number of shorter turbines (Option 1) would result in more large bird mortalities because raptors appear more susceptible to turbine collisions than waterfowl (AWWI 2021).
  - Option 1 is expected to result in greater collision risk for six of the eight special status bird species observed during AUS (ferruginous hawk, golden eagle, prairie falcon, tundra swan, American white pelican, great blue heron). Exposure indices were highest for Option 2 technologies for two special status bird species (sandhill crane, bald eagle), but it is uncertain to what degree this may be offset by fewer turbines.
- Based on a literature review, the weight of evidence suggests that per unit of energy output, a wind farm layout with fewer larger turbines (i.e., Option 2) is likely to have fewer total bird mortalities than one with a greater number of smaller turbines (i.e., Option 1).
- The relationship between turbine height and bat collision mortalities is too inconclusive to make confident predictions regarding which turbine option is expected to result in fewer bat mortalities.

The mortality risk for different taxa should be weighed against the potential for population-level impacts. For example, collisions with turbines do not appear likely to lead to population-level impacts for small passerine (i.e., songbird) species (AWWI 2021), but may have population-level impacts for some diurnal raptor species based on future wind energy projections (Diffendorfer et al. 2021). Considering that only three bat species (hoary, silver-haired, and eastern red bat) make up most bat mortalities at turbines, population-level impacts may become an issue as the number of wind farms increase (Barclay et al. 2007; Hein and Schirmacher 2016; Zimmerling and Francis 2016; Frick et al. 2017).

It is important to acknowledge that there is uncertainty associated with these conclusions related to conflicting results in available published scientific studies, lack of studies at turbines within the range of heights considered for the Horse Heaven Wind Farm, and potential for substantial variability in wildlife mortality based on local factors (e.g., bird abundance, species composition, topography, habitat, spatial arrangement of turbines). These sources of uncertainty limit the confidence of predicted wildlife mortality risk associated with the two turbine options.

5.0 CLOSURE

We trust that the information contained in this report is sufficient for your present needs. Should you have any questions regarding the Project or this report, please do not hesitate to contact the undersigned.

The material in this report reflects Golder's best judgment based on information available at the time of preparation and has been produced in a manner consistent with the level of care and skill normally exercised by environmental professionals currently practicing under similar conditions in the jurisdiction in which the services are provided. If the report is edited, revised, altered, or added to in any way, all references to Golder and Golder's employees must be removed unless changes are agreed to by Golder. Any use which a third party makes of this report or any reliance on or decisions to be made based on it are the responsibility of such third party. Golder accepts no responsibility for damages, if any, suffered by any third party as a result of decision made or action based on this report.

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APPENDIX A

Species-specific Exposure Indices from Avian Use Studies

Table A-1: Exposure Indices Calculated for Small Bird Species Observed During Avian Use Studies, 2017-2020

Common Name	Overall Mean Use	Percentage Flying	Option 1				Option 2			
			GE 2.82 MW Turbine (25 to 155 m RSH)		GE 3.03 MW Turbine (10 to 155 m RSH)		GE 5.5 MW Turbine (45 to 205 m RSH)		SG 6.0 MW Turbine (30 to 200 m RSH)	
			Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index
Horned lark	5.30	69.0	8.5	0.312	34.9	1.275	0	0	5.1	0.187
Unidentified small bird	0.15	96.1	21.6	0.032	95.9	0.149	21.6	0.032	21.6	0.032
Bank swallow	0.14	100.0	0	0	50.0	0.072	0	0	0	0
White-crowned sparrow	0.14	70.0	0	0	62.5	0.063	0	0	0	0
European starling	0.10	69.6	79.8	0.057	81.9	0.059	2.1	0.002	78.7	0.057
Barn swallow	0.09	100.0	10.3	0.010	41.4	0.039	0	0	10.3	0.010
Brewer’s blackbird	0.03	100.0	0	0	50.0	0.014	0	0	0	0
Western meadowlark	0.28	31.8	0	0	11.7	0.011	0	0	0	0
Western kingbird	0.03	31.3	20.0	0.002	80.0	0.008	0	0	20.0	0.002
Unidentified swallow	0.02	100.0	0	0	28.6	0.007	0	0	0	0
Savannah sparrow	0.06	76.9	0	0	12.0	0.006	0	0	0	0
Cliff swallow	0.04	100.0	0	0	10.0	0.004	0	0	0	0
American goldfinch	0.02	14.9	71.4	0.002	71.4	0.002	0	0	0	0
Red-winged blackbird	<0.01	100.0	66.7	0.001	100.0	0.002	0	0	66.7	0.001

Common Name	Overall Mean Use	Percentage Flying	Option 1				Option 2			
			GE 2.82 MW Turbine (25 to 155 m RSH)		GE 3.03 MW Turbine (10 to 155 m RSH)		GE 5.5 MW Turbine (45 to 205 m RSH)		SG 6.0 MW Turbine (30 to 200 m RSH)	
			Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index
American pipit	<0.01	50.0	50.0	0.001	50.0	0.001	0	0	0	0
Vesper sparrow	<0.01	85.7	16.7	0.001	16.7	0.001	0	0	0	0
American robin	<0.01	100.0	0	0	0	0	0	0	0	0
Chipping sparrow	<0.01	50.0	0	0	0	0	0	0	0	0
Golden-crowned sparrow	<0.01	100.0	0	0	0	0	0	0	0	0
Grasshopper sparrow	0.02	16.7	0	0	0	0	0	0	0	0
House finch	0.01	100.0	0	0	0	0	0	0	0	0
Lark sparrow	0.01	50.0	0	0	0	0	0	0	0	0
Northern flicker	0.01	25.0	0	0	0	0	0	0	0	0
Say’s phoebe	<0.01	100.0	0	0	0	0	0	0	0	0
Song sparrow	0.01	100.0	0	0	0	0	0	0	0	0
Unidentified passerine	<0.01	100.0	0	0	0	0	0	0	0	0
Unidentified sparrow	<0.01	50.0	0	0	0	0	0	0	0	0

Source: Table 3.4-9 of the ASC (Horse Heaven Wind Farm, LLC 2021).

MW = megawatt; RSH = rotor swept height

Table A-2: Exposure Indices Calculated for Large Bird Species Observed during Avian Use Studies, 2017–2020

Common Name	Overall Mean Use	Percentage Flying	Option 1				Option 2			
			GE 2.82 MW Turbine (25 to 155 m RSH)		GE 3.03 MW Turbine (10 to 155 m RSH)		GE 5.5 MW Turbine (45 to 205 m RSH)		SG 6.0 MW Turbine (30 to 200 m RSH)	
			Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percent Flying within RSH	Exposure Index
Corvids										
American crow	<0.01	100.0	0	0	0	0	0	0	0	0
Black-billed magpie	0.02	93.3	10.7	0.002	21.4	0.004	0	0	10.7	0.002
Common raven	1.54	93.8	53.2	0.77	82.2	1.19	25.1	0.363	47.2	0.684
Diurnal Raptors										
American kestrel	0.18	52.6	22.1	0.021	72.6	0.07	4.4	0.004	15.0	0.014
Bald eagle	**0.02**	**100.0**	**60.0**	**0.009**	**73.3**	**0.011**	**80.0**	**0.012**	**80.0**	**0.012**
Cooper's hawk	0.01	100.0	66.7	0.007	66.7	0.007	33.3	0.003	66.7	0.007
Ferruginous hawk	**0.01**	**100.0**	**50.0**	**0.003**	**75.0**	**0.004**	**50.0**	**0.003**	**50.0**	**0.003**
Golden eagle	**0.01**	**85.7**	**100.0**	**0.007**	**100.0**	**0.007**	**83.3**	**0.006**	**100.0**	**0.007**
Merlin	<0.01	100.0	0	0	0	0	0	0	0	0
Northern harrier	0.56	98.4	10.6	0.058	24.7	0.136	5.9	0.032	8.9	0.049
Osprey	<0.01	100.0	100.0	0.002	100.0	0.002	100.0	0.002	100.0	0.002
Prairie falcon	**0.02**	**57.6**	**63.2**	**0.007**	**89.5**	**0.01**	**26.3**	**0.003**	**52.6**	**0.006**
Red-tailed hawk	0.32	78.7	75.7	0.188	91.7	0.228	60.3	0.15	72.6	0.181

Common Name	Overall Mean Use	Percentage Flying	Option 1				Option 2			
			GE 2.82 MW Turbine (25 to 155 m RSH)		GE 3.03 MW Turbine (10 to 155 m RSH)		GE 5.5 MW Turbine (45 to 205 m RSH)		SG 6.0 MW Turbine (30 to 200 m RSH)	
			Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percent Flying within RSH	Exposure Index
Rough-legged hawk	0.26	88.7	75.9	0.172	93.8	0.213	49.5	0.112	71.0	0.161
Sharp-shinned hawk	0.01	100.0	42.9	0.002	71.4	0.004	28.6	0.002	42.9	0.002
Swainson's hawk	0.24	83.4	83.7	0.164	97.2	0.19	62.6	0.123	79.3	0.155
Unidentified accipiter	<0.01	100.0	75.0	0.003	75.0	0.003	75.0	0.003	100.0	0.003
Unidentified buteo	0.03	75.0	70.0	0.013	70.0	0.013	63.3	0.012	73.3	0.014
Unidentified falcon	0.01	70.0	28.6	0.001	42.9	0.002	14.3	0.001	14.3	0.001
Unidentified raptor	0.02	100.0	54.5	0.009	90.9	0.015	36.4	0.006	63.3	0.011
Doves/Pigeons										
Mourning dove	0.01	65.4	0	0	52.9	0.005	0	0	0	0
Rock pigeon	1.01	80.2	47.8	0.388	78.2	0.634	8.8	0.071	37.5	0.304
Gulls/Terns										
California gull	0.23	100.0	70.2	0.159	91.1	0.206	28.6	0.065	78.0	0.176
Ring-billed gull	0.02	100.0	30.8	0.005	30.8	0.005	3.8	0.001	28.8	0.005
Unidentified gull	0.09	100.0	94.2	0.087	97.1	0.09	89.4	0.082	93.3	0.086

Common Name	Overall Mean Use	Percentage Flying	Option 1				Option 2			
			GE 2.82 MW Turbine (25 to 155 m RSH)		GE 3.03 MW Turbine (10 to 155 m RSH)		GE 5.5 MW Turbine (45 to 205 m RSH)		SG 6.0 MW Turbine (30 to 200 m RSH)	
			Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percent Flying within RSH	Exposure Index
Owls										
Short-eared owl	<0.01	66.7	0	0	0	0	0	0	0	0
Shorebirds										
Killdeer	0.01	96.0	16.7	0.001	83.3	0.007	0	0	0	0
Long-billed curlew	0.01	60.0	16.7	0.001	100.0	0.003	0	0	16.7	0.001
Upland Game Birds										
California quail	0.01	13.3	0	0	0	0	0	0	0	0
Gray partridge	0.01	11.1	0	0	0	0	0	0	0	0
Vultures										
Turkey vulture	0.01	100.0	100.0	0.008	100.0	0.008	100.0	0.008	100.0	0.008
Waterbirds										
American white pelican	**0.35**	**100.0**	**81.5**	**0.289**	**81.9**	**0.29**	**85.6**	**0.303**	**85.6**	**0.303**
Great blue heron	**<0.01**	**100.0**	**100.0**	**<0.001**	**100.0**	**<0.001**	**100.0**	**<0.001**	**100.0**	**<0.001**
Sandhill crane	**1.60**	**98.4**	**2.6**	**0.042**	**2.6**	**0.042**	**21.1**	**0.332**	**21.1**	**0.332**

Common Name	Overall Mean Use	Percentage Flying	Option 1				Option 2			
			GE 2.82 MW Turbine (25 to 155 m RSH)		GE 3.03 MW Turbine (10 to 155 m RSH)		GE 5.5 MW Turbine (45 to 205 m RSH)		SG 6.0 MW Turbine (30 to 200 m RSH)	
			Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percentage Flying within RSH	Exposure Index	Percent Flying within RSH	Exposure Index
Waterfowl										
Canada goose	1.87	78.5	85.3	1.25	85.6	1.254	94.9	1.39	97.5	1.428
Greater white-fronted goose	0.01	100.0	100.0	0.011	100.0	0.011	57.1	0.006	100.0	0.011
Snow goose	12.96	98.0	75.5	9.579	76.3	9.681	81.7	10.372	98.3	12.479
Tundra swan	**0.01**	**100.0**	**0**	**0**	**100.0**	**0.011**	**0**	**0**	**0**	**0**
Unidentified goose	0.04	100.0	100.0	0.037	100.0	0.037	100.0	0.037	100.0	0.037

Source: Table 3.4-10 of the ASC (Horse Heaven Wind Farm 2021).

GE = General Electric; MW = megawatt; RSH = rotor swept height; SG = Siemens Gamesa

Bold text indicates special status bird species.

APPENDIX 4.10-1

Glare Analysis Inputs and Assumptions

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Glare Analysis Report for the Horse Heaven Wind Farm

Benton County, Washington

Prepared for:

Prepared by:

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January 2021

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EXECUTIVE SUMMARY

At the request of Scout Clean Energy, LLC (Scout), Tetra Tech, Inc. (Tetra Tech) conducted a glint and glare analysis of the proposed Horse Heaven Wind Farm (Project), which includes proposed solar energy generation in addition to wind. The analysis was conducted using the Solar Glare Hazard Analysis Tool (SGHAT) software through an online tool (GlareGauge) developed by Sandia National Laboratories and hosted by ForgeSolar. A total of eight glare analyses were conducted for the Project. The analyses modeled the points of view from an average first- and second-floor structure, as well as those from a typical commuter car and commercial truck. These analyses included several representative observation points from the surrounding community and several segmented traffic routes chosen to represent the relative traffic routes around the array areas.

The results of the analyses indicate that the surrounding observation points and vehicle routes would not experience glare as a result of the Project. The lack in predicted glare could be a result of the parameters for the solar panels and the relative lack of representative points from the surrounding area. The predicted glare at these receptors is considered to be a conservative representation as the SGHAT does not consider obstacles (either man-made or natural) between the defined solar photovoltaic arrays and the receptors such as vegetative screening (existing or planted), buildings, topography, etc. Where such features exist, they would screen views of the Project and, thus, minimize or eliminate glare from these receptor locations.

Based on the results of the Federal Aviation Administration Notice Criteria Tool, the Project does not exceed notice criteria and a formal filing is not necessary.

1 INTRODUCTION

The Horse Heaven Wind Farm (Project) consists of a renewable energy generation facility, which is located in unincorporated Benton County, Washington, within the Horse Heaven Hills area, which is an anticline ridge of the Yakima Folds within the larger Columbia Plateau Ecoregion. At its closest point, the Project is located approximately 4 miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area, along the Columbia River. In addition to proposed wind energy generation, the Project would include solar energy generation. Currently, Scout Clean Energy (Scout) is considering multiple areas for solar photovoltaic (PV) arrays for siting during final design (Attachment A). This analysis includes each potential set of solar arrays, divided into three areas for the purposes analysis: Solar Array County Well (West 1) near County Well Road, Solar Array Sellards (West 2) near Sellards Road, and Solar Array East on either side of Interstate-82 (Attachment B, Figure 1).

As an industry standard, the term "glint and glare" analysis is typically used to describe an analysis of potential ocular impacts to defined receptors. ForgeSolar defines glint and glare in the following statement:

> *Glint is typically defined as a momentary flash of bright light, often caused by a reflection off a moving source. A typical example of glint is a momentary solar reflection from a moving car. Glare is defined as a continuous source of bright light. Glare is generally associated with stationary objects, which, due to the slow relative movement of the sun, reflect sunlight for a longer duration.*

Based on the ForgeSolar definitions of glint and glare and the stationary nature of the Project solar PV modules related to the sun, the potential reflectance from the Project modeled throughout this report will be referred to as glare.

Tetra Tech completed a glare analysis using the Solar Glare Hazard Analysis Tool (SGHAT) software, developed by Sandia Laboratories, now hosted by ForgeSolar (as discussed further below; ForgeSolar 2020). The SGHAT software is considered an industry best practice and conservative model that effectively models the potential for glare at defined receptors from defined solar energy generating facilities. As discussed further below, the model is conservative in that it does not account for potential screening such as existing or proposed vegetation, topography outside of the defined areas, buildings, walls, or fences.

This report summarizes the glare analysis conducted based on the preliminary Project layout provided by Scout in November of 2020. Included as attachments are the Preliminary Project Layout that formed the basis of the analysis (Attachment A); Figure 1, "Solar Array Areas" and Figures 2a through 2c, "Glare Receptors" (Attachment B); and the raw glare analysis output reports generated through the use of the ForgeSolar tool (Attachment C).

2 FEDERAL AVIATION ADMINISTRATION NOTICE CRITERIA CONSULTATION

The Federal Aviation Administration (FAA) developed *Technical Guidance for Evaluating Selected Solar Technologies on Airports* in 2010, in addition to FAA regulatory guidance under 78 *Federal Register* (FR) 63276 Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports (collectively referred to as FAA Guidance) (FAA 2010). The FAA Guidance recommends that

glare analyses should be performed on a site-specific basis using the Sandia Laboratories SGHAT (FAA 2010). This guidance applies to solar facilities located on federally-obligated airport property; it is not mandatory for a proposed solar installation that is not on an airport (and for which a Form 7460-1 is filed with FAA pursuant to Title 14 Code of Federal Regulations [CFR] Part 77.9, as discussed below), but is considered to be an industry best practice for solar facilities in general. The SGHAT is the standard for measuring potential ocular impact as a result of solar facilities (78 FR 63276).

According to 78 FR 63276, the FAA has determined that "glint and glare from solar energy systems could result in an ocular impact to pilots and/or air traffic control facilities and compromise the safety of the air transportation system." The FAA has developed the following criteria for analysis of solar energy projects located on jurisdictional airports:

- No potential for glint or glare in the existing or planned air traffic control tower cab; and
- No potential for glare or "low potential for after-image" along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan (ALP). The final approach path is defined as 2 miles from 50 feet above the landing threshold using a standard 3-degree glidepath.

The online FAA Notice Criteria Tool (NCT) reports whether a proposed structure is in proximity to a jurisdictional air navigation facility and if formal submission to the FAA under 14 CFR Part 77.9 (Safe, Efficient Use, and Preservation of the Navigable Airspace) is recommended (FAA 2020). The NCT also identifies final approach flight paths that may be considered vulnerable to a proposed structure's impact on navigation signal reception. The NCT was utilized to determine if the proposed Project is located within an FAA-identified impact area based on the Project boundaries and height above ground surface. The FAA NCT Report stated that the Project does not exceed notice criteria.

3 GLARE ANALYSIS METHOD

The SGHAT is considered to be an industry best practice for analysis of glare related to solar energy generating facilities. Tetra Tech utilized the SGHAT technology as part of an online tool (GlareGauge) developed by Sandia National Laboratories and hosted by ForgeSolar. GlareGauge provides a quantitative assessment of the following (ForgeSolar 2020):

- When and where glare has the potential to occur throughout the year for a defined solar array polygon; and
- Potential effects on the human eye at locations where glare is predicted.

The following statement was issued by Sandia Laboratories regarding the SGHAT technology:

> *Sandia developed SGHAT v. 3.0, a web-based tool and methodology to evaluate potential glint/glare associated with solar energy installations. The validated tool provides a quantified assessment of when and where glare will occur, as well as information about potential ocular impacts. The calculations and methods are based on analyses, test data, a database of different photovoltaic module surfaces (e.g. anti-reflective coating, texturing), and models developed over several years at Sandia. The results are presented in a simple easy-to-interpret plot that specifies when glare will occur throughout the year, with color indicating the potential ocular hazard.* (Sandia 2016)

Note, however, that technology changes continue to occur to address issues such as reflectivity. The model, therefore, presents a conservative assessment based upon simplifying assumptions inherent in the model as well as industry improvements since the most recent update of such assumptions.

Based on the predicted retinal irradiance (i.e., intensity) and subtended angle (i.e., size/distance) of the glare source to receptor, the GlareGauge categorizes potential glare where it is predicted by the model to occur in accordance with three tiers of severity (i.e., ocular hazards) that are shown by different colors in the model output:

- Red glare: glare predicted with a potential for permanent eye damage (i.e., retinal burn)
- Yellow glare: glare predicted with a potential for temporary after-image
- Green glare: glare predicted with a low potential for temporary after-image

These categories of glare are calculated using a typical observer's blink response time, ocular transmission coefficient (i.e., the amount of radiation absorbed in the eye prior to reaching the retina), pupil diameter, and eye focal length (i.e., the distance between where rays intersect in the eye and the retina). As a point of comparison, direct viewing of the sun without a filter is considered to be on the border between yellow glare and red glare, while typical camera flashes are considered to be lower tier yellow glare (i.e., approximately 3 orders of magnitude less than direct viewing of the sun). Upon exposure to yellow glare, the observer may experience a spot in their vision temporarily lasting after the exposure. Upon exposure to green glare, the observer may experience a bright reflection but typically no spot lasting after exposure.

4 GLARE ANALYSIS INPUTS

The modules to be used for the proposed Project are smooth glass surface material with an anti-reflection coating (ARC), which are parameters selected in the glare analyses. Values associated with panel reflectivity and reflective scatter were not altered from the GlareGauge standard input averaged from various module reflectance profiles produced from module research concluded in 2016; therefore, as previously noted, the model does not incorporate further advances in anti-reflective coatings since that time (Sandia 2016).

Due to capacity constraints in the SGHAT, which limits the number of drawn photovoltaic (PV) array areas to 20 per analysis, Tetra Tech performed eight separate glare analyses: two for Solar Array County Well (West 1) (Analysis 1 and 2), two for Solar Array Sellards (West 2) (Analysis 3 and 4), four for Solar Array East (Analyses 5 through 8). Each analysis evaluated separate "PV Array Areas," which are segmented polygons within each of the three larger solar array areas generally representative of the proposed Project layout as of November 2020 (Attachment A). Analysis 1 and 2 consisted of 12 PV Array Areas, Analysis 3 and 4 consisted of 18 PV Array Areas, Analysis 5 and 6 consisted of 17 PV Array Areas, and Analysis 7 and 8 consisted of 13 PV Array Areas (Attachment B). Segmentation of the Project layout allows GlareGauge to more accurately represent potential ocular impacts as a result of the Project.

Each analysis run included proximal segmented vehicular traffic routes, as well as several residential receptors (also referred to as observation points [OPs]). The vehicular route and residential receptors were selected to provide a representation of proximal areas surrounding the Project that could experience glare. The route segment extents were based on the results of Tetra Tech's preliminary viewshed analysis for the Project. The residential receptors are a subset of the noise sensitive receptors analyzed for the

Project as part of the acoustic assessment (see Section 4.1.1 and Appendix O in the Application for Site Certification), and retain the associated identification numbers for cross-reference in addition to the simplified OP numbering needed for the SGHAT. The analyses for each array area were run first from the point of view from an average first floor (6 feet) and typical commuter car height (5 feet), followed by an analysis from the point of view from an average second floor residential structure (16 feet) and commercial truck height above the road surface (9 feet). The additional input features used in the analyses are summarized in Table 1.

Table 1. Glare Analyses Input Features

Analysis No.	Racking Type	Module Orientation[1]	Tilt[2] (degrees)	Resting Angle (degrees)[3]	Module Height[4] (feet)	OP Height[5] (feet)	Route Height[6] (feet)
1	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
2	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9
3	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
4	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9
5	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
6	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9
7	Single Axis Tracking	East-to-West-facing	Variable	10	8	6	5
8	Single Axis Tracking	East-to-West-facing	Variable	10	8	16	9

Notes:
OP = observation point; PV = photovoltaic
[1] PV Array Areas modeled as single axis tracking modules from east-facing in the morning hours to west-facing in the evening hours.
[2] The module tilt varies through the day as they track the sun, the maximum tracking angle tilt is ±50˚.
[3] The resting angle is used to model module backtracking when the sun is outside of the module rotation range. A resting angle of 10 assumes that the modules immediately revert back to 10˚ (backtrack) when the sun is outside of the rotation range.
[4] Average module centroid height above ground surface.
[5] Height of observation point receptor: 6 feet represents an average first floor residential/commercial point of view and 16 feet represents an average second floor residential/commercial point of view.
[6] Height of vehicular route receptor: 5 feet represents typical commuter car height views and 9 feet represents typical semi-tractor-trailer truck views.

5 GLARE ANALYSIS ASSUMPTIONS

The GlareGauge model is bound by conservative limitations. The following assumptions provide a level of conservatism to the GlareGauge model:

- The GlareGauge model simulates PV arrays as infinitesimally small modules within planar convex polygons exemplifying the tilt and orientation characteristics defined by the user. Gaps between modules, variable heights of the PV array within the polygons, and supporting structures are not considered in the analysis. Because the actual module rows will be separated by open space, this model assumption could result in indication of glare in locations where panels will not be located. In addition, the supporting structures are considered to have reflectivity values that are negligible relative to the module surfaces included in the model.
- The GlareGauge model utilizes a simplified model of backtracking, which assumes panels instantaneously revert to the "resting angle" whenever the sun is outside the rotation range.
- The GlareGauge model assumes that the observation point receptor can view the entire PV array segment when predicting glare minutes; however, it may be that the receptor at the observation point may only be able to view a small portion (typically the nearest edge) of the PV array segment. Therefore, the predicted glare minutes and intensity from a specific PV array to a specific observation point are conservative because the observer will likely not experience glare from the entire PV array segment at once.
- The GlareGauge model does not consider obstacles (either man-made or natural) between the defined PV arrays and the receptors such as vegetative screening (existing or planted), buildings, topography, etc. Where such features exist, they would screen views of the Project and, thus, minimize or eliminate glare from those locations.
- The GlareGauge model does not consider the potential effect of shading from existing topography between the sun and the Project outside of the defined areas.
- The direct normal irradiance (DNI) is defined as variable using a typical clear day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum of 1,000 watts per square meter (W/m^2) at solar noon. The irradiance profile uses the coordinates from Google Maps and a sun position algorithm to scale the DNI throughout the year. The actual daily DNI would be affected by precipitation, cloud cover, atmospheric attenuation (radiation intensity affected by gaseous constituents), and other environmental factors not considered in the GlareGauge model. This may result in modeled predicted glare occurrences when in fact the glare is not actually occurring due to cloud cover, rain, or other atmospheric conditions.

Note that hazard zone boundaries shown in the Glare Hazard plots are an approximation; actual ocular impacts encompass a continuous, not discrete, spectrum.

6 GLARE ANALYSIS RESULTS

Tetra Tech performed eight different analyses covering four groupings of PV arrays to provide a quantitative assessment of the potential for glare from the Project based on different receptor characteristics. The GlareGauge model's predicted results for the Project are summarized in the following sections partitioned according to the receptor parameters.

6.1 Analysis 1: Solar Array County Well (West 1) PV Array Areas - First Story and Commuter Car View Results

Analysis 1 consisted of 12 PV Arrays (1-1 through 1-12), as viewed from four OPs at 6 feet above ground surface (i.e., typical first story receptor height), and seven segmented vehicular traffic routes at 5 feet above ground surface (i.e., typical commuter vehicle receptor height) (Attachment B, Figure 2a).

Table 2 represents the glare summary in annual minutes of glare for Analysis 1. Based on the SGHAT results, no amounts of glare are predicted at any of the OPs or at the segmented vehicular routes.

Table 2. Analysis 1 Annual Minutes of Glare Summary – Solar Array County Well

Receptor ID	Green Glare	Yellow Glare	Red Glare
185 (OP-1)	0	0	0
737 (OP-2)	0	0	0
715 (OP-3)	0	0	0
743 (OP-4)	0	0	0
Country Well Rd	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
S Travis Road-1	0	0	0
WA-221-1	0	0	0
WA-221-2	0	0	0
WA-221-3	0	0	0

6.2 Analysis 2: Solar Array County Well (West 1) PV Array Areas - Second Story and Commercial Truck View Results

Analysis 2 included the same PV Arrays and the same receptor locations as Analysis 1, with the OP viewing height raised to 16 feet above ground surface (i.e., typical second story receptor height) and the segmented vehicular traffic route viewing height raised to 9 feet above ground surface (i.e., typical commercial truck receptor height) (Attachment B, Figure 2a).

Table 3 represents the glare summary in annual minutes of glare for Analysis 2. Based on the SGHAT results, no amounts of glare were predicted at any of the defined receptors.

Table 3. Analysis 2 Annual Minutes of Glare Summary – Solar Array County Well

Receptor ID	Green Glare	Yellow Glare	Red Glare
185 (OP-1)	0	0	0
737 (OP-2)	0	0	0
715 (OP-3)	0	0	0
743 (OP-4)	0	0	0
Country Well Rd	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
S Travis Road-1	0	0	0
WA-221-1	0	0	0
WA-221-2	0	0	0
WA-221-3	0	0	0

6.3 Analysis 3: Solar Array Sellards (West 2) PV Array Areas - First Story and Commuter Car View Results

Analysis 3 consisted of 18 PV Arrays (2-1 through 2-18), as viewed from five OPs at 6 feet above ground surface and seven segmented vehicular traffic routes at 5 feet above ground surface (Attachment B, Figure 2b).

Table 4 represents the glare summary in annual minutes of glare for Analysis 3. Based on the SGHAT results, no amounts of glare were predicted at the defined receptors.

Table 4. Analysis 3 Annual Minutes of Glare Summary – Solar Array Sellards

Receptor ID	Green Glare	Yellow Glare	Red Glare
141 (OP-1)	0	0	0
185 (OP-2)	0	0	0
737 (OP-3)	0	0	0
744 (OP-4)	0	0	0
195 (OP-5)	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
Sellards Road-3	0	0	0
S Travis Road-1	0	0	0
S Travis Road-2	0	0	0
WA-221-1	0	0	0
WA-221-2	0	0	0

6.4 Analysis 4: Solar Array Sellards (West 2) PV Array Areas - Second Story and Commercial Truck View Results

Analysis 4 included the same PV Arrays and the same receptor locations as Analysis 3, with the OP viewing height raised to 16 feet above ground surface and the segmented vehicular traffic route viewing height raised to 9 feet above ground surface (Attachment B, Figure 2b).

Table 5 represents the glare summary in annual minutes of glare for Analysis 4. Based on the SGHAT results, no amounts of glare were predicted at the defined receptors.

Table 5. Analysis 4 Annual Minutes of Glare Summary – Solar Array Sellards

Receptor ID	Green Glare	Yellow Glare	Red Glare
141 (OP-1)	0	0	0
185 (OP-2)	0	0	0
737 (OP-3)	0	0	0
744 (OP-4)	0	0	0
195 (OP-5)	0	0	0
Sellards Road-1	0	0	0
Sellards Road-2	0	0	0
Sellards Road-3	0	0	0
S Travis Road-1	0	0	0
S Travis Road-2	0	0	0
WA-221-`1	0	0	0
WA-221-2	0	0	0

6.5 Analyses 5 and 7: Solar Array East PV Array Areas - First Story and Commuter Car View Results

As noted in Section 4, the SGHAT constrains the number of drawn PV array areas to a maximum of 20 per analysis; thus, the Solar Array East area had to be divided two sets of PV arrays with two analyses each for the height variations, resulting in Analyses 5 through 8. Analysis 5 consisted of 17 PV Arrays (3-1 through 3-17), as viewed from six OPs at 6 feet above ground surface and seven segmented vehicular traffic routes at 5 feet above ground surface (Attachment B, Figure 2c). Analysis 7 consisted of 13 PV Arrays (4-1 through 4-13) as viewed from the same receptors at the same heights as Analysis 5 (Attachment B, Figure 2c).

Table 6 represents the glare summary in combined annual minutes of glare for Analysis 5 and 7. Based on the SGHAT results, no amounts of glare are predicted at any of the OPs or at the segmented vehicular routes.

Table 6. Analyses 5 and 7 Annual Minutes of Glare Summary – Solar Array East

Receptor	Green Glare	Yellow Glare	Red Glare
192 (OP-1)	0	0	0
215 (OP-2)	0	0	0
187 (OP-3)	0	0	0
178 (OP-4)	0	0	0
745 (OP-5)	0	0	0
195 (OP-6)	0	0	0
Beck Rd-1	0	0	0
Beck Rd-2	0	0	0
Beck Rd-3	0	0	0
US HWY 395-1	0	0	0
US HWY 395-2	0	0	0
US HWY 395-3	0	0	0
US HWY 395-4	0	0	0

6.6 Analyses 6 and 8: Solar Array East PV Array Areas - Second Story and Commercial Truck View Results

Analysis 6 included the same PV Arrays as Analysis 5 (3-1 through 3-17), and Analysis 8 included the same PV Arrays as Analysis 7 (4-1 through 4-13). The receptor locations remain the same across all four analyses. For both Analysis 6 and 8, the OP viewing height was raised to 16 feet above ground surface and the segmented vehicular traffic route viewing height was raised to 9 feet above ground surface (Attachment B, Figure 2c).

Table 7 represents the glare summary in combined annual minutes of glare for Analyses 6 and 8. Based on the SGHAT results, no amounts of glare were predicted at any of the defined receptors.

Table 7. Analyses 6 and 8 Annual Minutes of Glare Summary – Solar Array East

Receptor	Green Glare	Yellow Glare	Red Glare
192 (OP-1)	0	0	0
215 (OP-2)	0	0	0
187 (OP-3)	0	0	0
178 (OP-4)	0	0	0
745 (OP-5)	0	0	0
195 (OP-6)	0	0	0
Beck Rd-1	0	0	0
Beck Rd-2	0	0	0
Beck Rd-3	0	0	0
US HWY 395-1	0	0	0
US HWY 395-2	0	0	0
US HWY 395-3	0	0	0
US HWY 395-4	0	0	0

7 SUMMARY

The preliminary Project layout for the solar PV arrays was modeled using GlareGauge to evaluate the potential extent of glare the Project may cause to receptors at several OPs and segmented traffic routes representing proximal areas surrounding the Project.

In order to better analyze the potential for glare as a result of sunlight reflectance from the Project and accommodate GlareGauge conservatisms noted in Section 4.0, 60 PV Array Areas were modeled within the Project layout, which was broken down into three separate areas (i.e., Solar Array County Well [West 1], Solar Array Sellards [West 2], and Solar Array East). Eight separate glare analyses (i.e., Analysis 1 through Analysis 8) were performed to provide a quantitative assessment of the potential for glare as a result of the Project, based on views from first- and second-story structures, and commuter and commercial vehicles.

Based on the SGHAT results, all of the modeled receptors (OPs and vehicular routes) are predicted to not experience glare as a result of the Project. As previously noted, the GlareGauge model does not account for varying ambient conditions (i.e., cloudy days, precipitation), atmospheric attenuation, screening due to existing topography not located within the defined array layouts, or existing vegetation or structures (including fences or walls), nor does the tool allow proposed landscaping to be included; therefore, the predicted results are considered to be conservative. This means that the existing vegetation (crops) and topography of the surrounding area are not accounted for with the GlareGauge model and will most likely have a significant impact on glare reduction from receptors. In addition, the Project was modeled with backtracking (i.e., the modules reverted back to 10-degree position [resting angle] when the sun is outside of the tracking range). The sun is outside of the 50-degree maximum tracking range in the early morning hours (until approximately 8:00 AM) and in the late evening hours of the day (beginning at approximately 7:00 PM). The GlareGauge model assumes that backtracking to the resting angle will be instantaneous, when in fact the process will be slower, resulting in less glare experienced than predicted. The module backtracking program that will be implemented on the Project detects the rising sun light and begins to tilt the modules out of the resting position until they reach the maximum tracking angle (50 degrees) facing east around 8:00 to 8:30 AM. Subsequently, as the modules track to the east, western receptors will experience less glare prior to 8:00 AM because the receptor will be observing the back of the modules. Likewise, in the evening hours, the eastern receptors will experience less glare from approximately 6:00

PM to 8:00 PM as the modules slowly backtrack to the resting angle. In general, tracking and backtracking at a slower pace than assumed by GlareGauge will result in significantly less glare experienced than predicted. Therefore, the representation of backtracking using an immediate 10 degree revert position is also a conservative approach to predicting glare at the surrounding receptors.

As noted in Section 2.0, the FAA has developed the following criteria (78 FR 63276) for analysis of solar energy projects located on jurisdictional airports:

- No potential for glint or glare in the existing or planned Air Traffic Control Tower cab; and
- No potential for glare or "low potential for after-image" along the final approach path for any existing landing threshold or future landing thresholds (including any planned interim phases of the landing thresholds) as shown on the current FAA-approved Airport Layout Plan.

Based on the results of the FAA NCT, the Project does not exceed notice criteria and a formal filing is not necessary.

8 REFERENCES

FAA (Federal Aviation Administration). 2010. Technical Guidance for Evaluating Selected Solar Technologies on Airports. Office of Airports, Office of Airport Planning and Programming, Airport Planning and Environmental Division (APP-400). November.

FAA. 2020. Notice Criteria Tool hosted by Federal Aviation Administration. Accessed online https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm

ForgeSolar. 2020. Sandia Solar Glare Hazard Analysis Tool, GlareGauge hosted by ForgeSolar. Accessed online https://www.forgesolar.com/.

Sandia (Sandia National Laboratories). 2016. Solar Glare Hazard Analysis Tool (SGHAT) User's Manual v. 3.0. December 6, 2016.

ATTACHMENT A
PRELIMINARY SITE PLAN

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Preliminary Project Layout Solar and Supporting Facilities

BENTON COUNTY, WA

HH-West Intermediate Substation (Alternate)

HH-West Step-up Substation 500-kV (Alternate)

BPA Webber Canyon Substation (Alternate)

HH-West Intermediate Substation (Primary)

BPA Webber Canyon Substation (Primary)

HH-West Step-up Substation 500-kV (Primary)

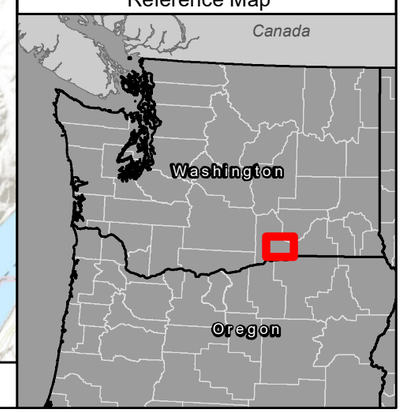
BPA Bofer Canyon Substation

HH-East Substation

- Project Lease Boundary
- Sellards Road 230-kV Transmission Line (Primary)
- Sellards Road 500-kV Transmission Line Step-up (Primary)
- Sellards Road 230-kV Transmission Line (Alternate)
- Solar Intertie 230-kV Transmission Line
- County Well Road 230-kV Transmission Line (Primary)
- County Well Road 500-kV Transmission Line Step-up (Primary)
- County Well Road 230-kV Transmission Line (Alternate)
- 230-kV Intertie Transmission Line (Primary)
- 230-kV Intertie Transmission Line (Alternate)
- 230-kV Alternate Intertie Transmission Line
- Project Substation (Primary)
- Project Substation (Alternate)
- Solar AOI (Area of Interest)
- Solar Array
- BPA Substation (Primary)
- BPA Substation (Alternate)

TETRA TECH

Reference Map



1:140,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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ATTACHMENT B
FIGURES

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 1
Solar Array Areas

BENTON COUNTY, WA

Solar Array County Well (West 1)

Solar Array Sellards (West 2)

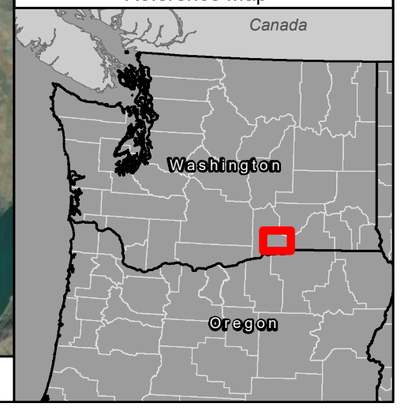
Solar Array East

Solar Array East

- Solar Array Area
- Project Lease Boundary
- Solar Siting Area

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 2a
Glare Receptors
Solar Array County Well (West 1)

BENTON COUNTY, WA

Receptor 715 (OP-3)

Receptor 743 (OP-4)

Receptor 185 (OP-1)

Receptor 737 (OP-2)

1-1
1-2
1-3
1-4
1-5
1-6
1-7
1-8
1-9
1-10
1-12
1-13

- Project Lease Boundary
- Solar Array Area

Residential Receptors

- Observation Point

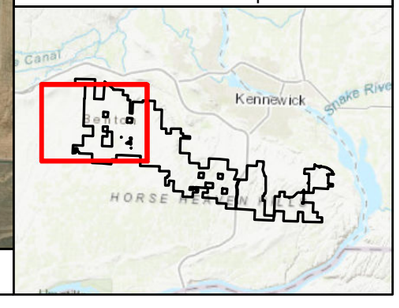
Road Receptors*

- Country_Well_Rd
- S_Travis_Rd-1
- Sellards_Road-1
- Sellards_Road-2
- WA-221-1
- WA-221-2a
- WA-221-3

* The actual width of the road receptors shown in this figure are smaller than they appear, as the highlighted roads receptors have been enlarged in this figure to aid in readability.

TETRA TECH

Reference Map



1:50,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 2b
Glare Receptors
Solar Array Sellards
(West 2)

BENTON COUNTY, WA

Receptor 185 (OP-2)

Receptor 141 (OP-1)

Receptor 737 (OP-3)

Receptor 195 (OP-5)

Receptor 744 (OP-4)

2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 2-12, 2-13, 2-14, 2-15, 2-16, 2-17, 2-18

- Project Lease Boundary
- Solar Array Area

Residential Receptors

- Observation Point

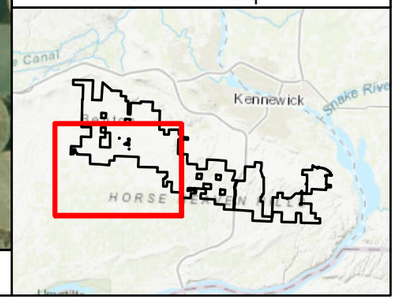
Road Receptors*

- S_Travis_Rd-1
- S_Travis_Rd-2
- Sellards_Road-1
- Sellards_Road-2
- Sellards_Road-3
- WA-221-1
- WA-221-2b

* The actual width of the road receptors shown in this figure are smaller than they appear, as the highlighted roads receptors have been enlarged in this figure to aid in readability.

TETRA TECH

Reference Map



1:60,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure 2c
Glare Receptors
Solar Array East

BENTON COUNTY, WA

Receptor 215 (OP-2)

Receptor 195 (OP-6)

Receptor 192 (OP-1)

Receptor 187 (OP-3)

Receptor 178 (OP-4)

Receptor 745 (OP-5)

3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 3-13, 3-14, 3-15, 3-16, 3-17

4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 4-13

Project Lease Boundary

Solar Array Area

Residential Receptors

Observation Point

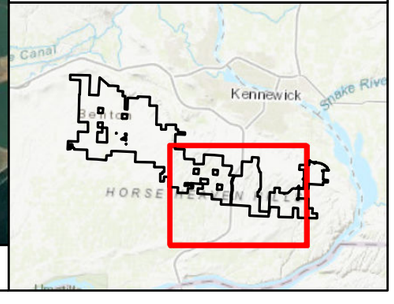
Road Receptors*

- Becks_Rd-1
- Becks_Rd-2
- Becks_Rd-3
- US_HWY_395-1
- US_HWY_395-2
- US_HWY_395-3
- US_HWY_395-4

* The actual width of the road receptors shown in this figure are smaller than they appear, as the highlighted roads receptors have been enlarged in this figure to aid in readability.

TETRA TECH

Reference Map



1:65,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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ATTACHMENT C
FORGESOLAR GLARE ANALYSIS REPORTS

FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West 1-1st**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:05 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

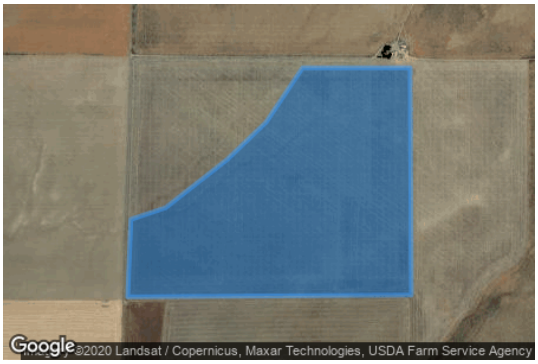
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46876.8449

PV Array(s)

Name: PV array 1-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186226	-119.558406	1361.27	7.00	1368.27
2	46.186256	-119.538880	1389.29	7.00	1396.29
3	46.182364	-119.538880	1372.25	7.00	1379.25
4	46.182215	-119.558364	1346.31	7.00	1353.31

Name: PV array 1-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.213261	-119.525075	1464.23	7.00	1471.23
2	46.213261	-119.517264	1469.49	7.00	1476.49
3	46.201886	-119.517178	1478.00	7.00	1485.00
4	46.201797	-119.537777	1452.42	7.00	1459.42
5	46.205673	-119.537541	1435.13	7.00	1442.13
6	46.206252	-119.535031	1435.99	7.00	1442.99
7	46.208658	-119.530568	1450.69	7.00	1457.69
8	46.210529	-119.527735	1455.28	7.00	1462.28

Name: PV array 1-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.201745	-119.537781	1452.74	7.00	1459.74
2	46.201745	-119.527181	1488.16	7.00	1495.16
3	46.187426	-119.526923	1391.33	7.00	1398.33
4	46.187367	-119.537824	1396.71	7.00	1403.71

Name: PV array 1-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.201884	-119.527277	1486.99	7.00	1493.99
2	46.201944	-119.517234	1477.58	7.00	1484.58
3	46.198082	-119.517320	1444.74	7.00	1451.74
4	46.194339	-119.519981	1428.46	7.00	1435.46
5	46.192141	-119.522985	1417.08	7.00	1424.09
6	46.188992	-119.525217	1401.43	7.00	1408.44
7	46.187447	-119.526976	1392.25	7.00	1399.25

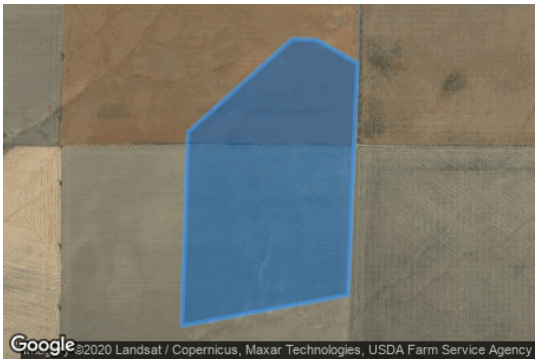
Name: PV array 1-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182274	-119.555274	1348.90	7.00	1355.90
2	46.177580	-119.558836	1327.94	7.00	1334.94
3	46.175767	-119.558879	1325.17	7.00	1332.17
4	46.175826	-119.547978	1326.17	7.00	1333.17
5	46.177164	-119.547034	1332.79	7.00	1339.79
6	46.180640	-119.545489	1350.21	7.00	1357.21
7	46.182364	-119.545103	1358.34	7.00	1365.34

Name: PV array 1-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

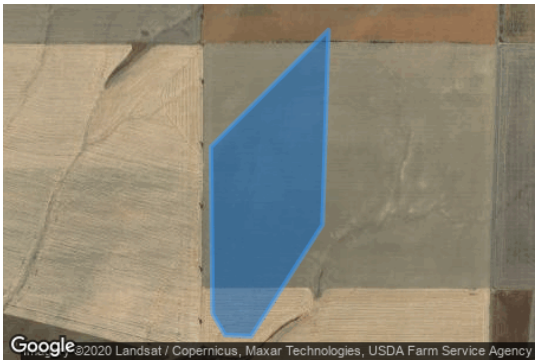
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182334	-119.544073	1355.58	7.00	1362.58
2	46.179600	-119.544416	1343.33	7.00	1350.33
3	46.178471	-119.545060	1344.26	7.00	1351.26
4	46.176302	-119.545360	1332.42	7.00	1339.42
5	46.174281	-119.547334	1327.65	7.00	1334.65
6	46.173806	-119.547377	1331.44	7.00	1338.44
7	46.173865	-119.538751	1348.97	7.00	1355.97
8	46.182423	-119.538837	1372.51	7.00	1379.51

Name: PV array 1-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



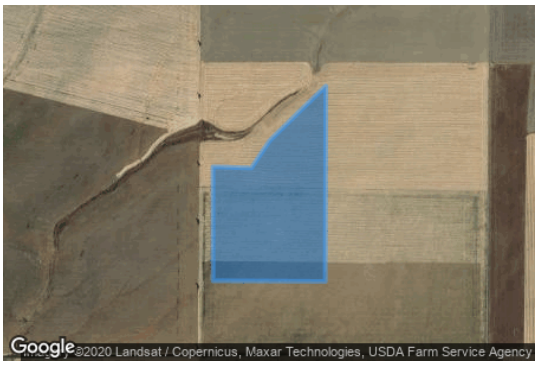
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.206362	-119.538174	1441.16	7.00	1448.16
2	46.218003	-119.537488	1503.05	7.00	1510.05
3	46.219161	-119.540406	1525.83	7.00	1532.83
4	46.219220	-119.542208	1523.71	7.00	1530.71
5	46.214529	-119.549804	1493.85	7.00	1500.85
6	46.204817	-119.550233	1427.67	7.00	1434.67

Name: PV array 1-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



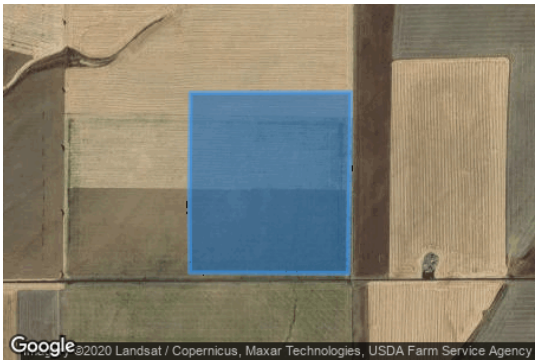
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200362	-119.558302	1416.39	7.00	1423.39
2	46.199293	-119.557400	1406.00	7.00	1413.00
3	46.199233	-119.555512	1413.98	7.00	1420.98
4	46.204817	-119.550319	1427.75	7.00	1434.75
5	46.214558	-119.549890	1493.74	7.00	1500.74
6	46.208708	-119.558430	1482.25	7.00	1489.25

Name: PV array 1-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



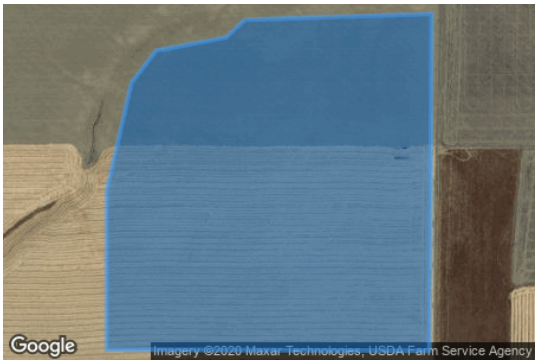
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200456	-119.549994	1414.14	7.00	1421.14
2	46.190683	-119.550037	1389.49	7.00	1396.49
3	46.190712	-119.558191	1373.62	7.00	1380.62
4	46.196416	-119.558191	1407.05	7.00	1414.05
5	46.196357	-119.555401	1409.91	7.00	1416.91
6	46.197723	-119.554071	1412.48	7.00	1419.48
7	46.199060	-119.552097	1418.14	7.00	1425.14

Name: PV array 1-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



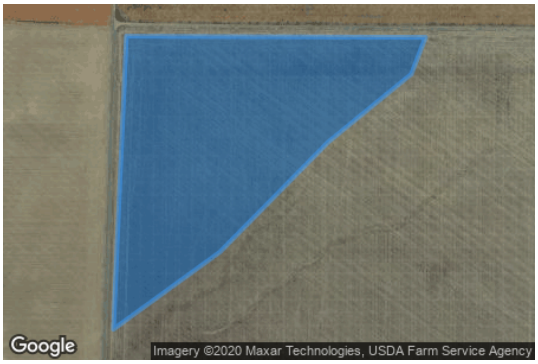
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.190742	-119.550123	1390.05	7.00	1397.05
2	46.187444	-119.550080	1375.64	7.00	1382.64
3	46.187415	-119.538578	1392.91	7.00	1399.91
4	46.196476	-119.538407	1433.60	7.00	1440.60
5	46.196446	-119.550037	1435.72	7.00	1442.72

Name: PV array 1-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.196505	-119.550080	1435.49	7.00	1442.49
2	46.196476	-119.538364	1434.33	7.00	1441.33
3	46.204911	-119.538278	1431.71	7.00	1438.71
4	46.204763	-119.545059	1424.34	7.00	1431.34
5	46.204317	-119.545745	1428.41	7.00	1435.41
6	46.203991	-119.548277	1424.69	7.00	1431.69
7	46.203189	-119.549179	1422.57	7.00	1429.57
8	46.200486	-119.550080	1412.92	7.00	1419.92

Name: PV array 1-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.213558	-119.537091	1464.05	7.00	1471.05
2	46.213528	-119.526233	1460.74	7.00	1467.74
3	46.212608	-119.526748	1464.19	7.00	1471.19
4	46.210915	-119.529752	1454.38	7.00	1461.38
5	46.208153	-119.533701	1445.36	7.00	1452.36
6	46.206223	-119.537563	1440.36	7.00	1447.36

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.157483	-119.496755	1415.78	6.00
OP 2	2	46.136308	-119.572725	1188.75	6.00
OP 3	3	46.228568	-119.537703	1473.44	6.00
OP 4	4	46.201261	-119.599865	1347.21	6.00

Route Receptor(s)

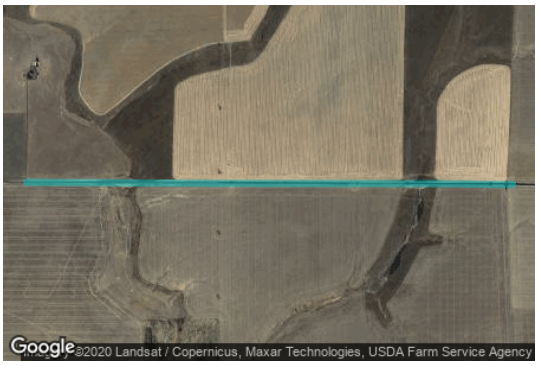
Name: Country Well Rd
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186942	-119.571627	1317.23	5.00	1322.23
2	46.186972	-119.558538	1363.75	5.00	1368.75
3	46.187061	-119.541157	1385.48	5.00	1390.48
4	46.187061	-119.531201	1399.83	5.00	1404.83
5	46.187120	-119.521502	1423.59	5.00	1428.59
6	46.187135	-119.508649	1435.66	5.00	1440.66
7	46.187165	-119.499529	1447.66	5.00	1452.66
8	46.187180	-119.493908	1455.78	5.00	1460.78

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	5.00	1188.15
2	46.130919	-119.562151	1181.49	5.00	1186.49
3	46.130904	-119.554555	1215.70	5.00	1220.70
4	46.130889	-119.542899	1221.76	5.00	1226.76
5	46.130844	-119.538050	1246.26	5.00	1251.26

Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	5.00	1252.09
2	46.130696	-119.530857	1270.87	5.00	1275.87
3	46.130547	-119.521759	1298.29	5.00	1303.29
4	46.130443	-119.515729	1303.92	5.00	1308.92
5	46.130370	-119.508138	1302.79	5.00	1307.79
6	46.130281	-119.499812	1345.74	5.00	1350.74
7	46.130221	-119.492731	1360.96	5.00	1365.96
8	46.130177	-119.483955	1386.73	5.00	1391.73
9	46.130117	-119.475694	1406.43	5.00	1411.43

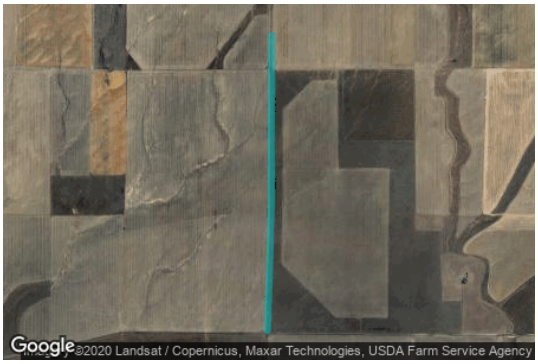
Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	5.00	1509.91
2	46.155270	-119.454195	1512.40	5.00	1517.40
3	46.151152	-119.454667	1487.89	5.00	1492.89
4	46.147584	-119.454753	1498.02	5.00	1503.02
5	46.142991	-119.454688	1492.24	5.00	1497.24
6	46.136984	-119.454495	1455.52	5.00	1460.52
7	46.131308	-119.454323	1437.90	5.00	1442.90

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161059	-119.600993	1218.15	5.00	1223.15
2	46.155946	-119.600993	1197.87	5.00	1202.87
3	46.150446	-119.601057	1172.58	5.00	1177.58
4	46.145035	-119.601014	1147.99	5.00	1152.99
5	46.139043	-119.601229	1127.91	5.00	1132.91
6	46.135178	-119.601422	1111.14	5.00	1116.14
7	46.131490	-119.601594	1098.20	5.00	1103.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161258	-119.601002	1220.31	5.00	1225.31
2	46.165909	-119.600938	1232.02	5.00	1237.02
3	46.170902	-119.600895	1251.25	5.00	1256.25
4	46.178436	-119.600916	1294.24	5.00	1299.24
5	46.183985	-119.600938	1328.54	5.00	1333.54
6	46.184743	-119.601281	1334.45	5.00	1339.45
7	46.185560	-119.601968	1335.54	5.00	1340.54
8	46.186110	-119.602890	1339.61	5.00	1344.61

Name: WA-221-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186273	-119.603363	1338.88	5.00	1343.88
2	46.186615	-119.604457	1338.58	5.00	1343.58
3	46.186749	-119.605937	1332.06	5.00	1337.06
4	46.186689	-119.611280	1330.41	5.00	1335.41
5	46.186674	-119.615701	1344.05	5.00	1349.05
6	46.186674	-119.622095	1349.76	5.00	1354.76
7	46.186719	-119.626730	1353.10	5.00	1358.10

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 1-1	SA tracking	SA tracking	0	0	-
PV array 1-10	SA tracking	SA tracking	0	0	-
PV array 1-11	SA tracking	SA tracking	0	0	-
PV array 1-12	SA tracking	SA tracking	0	0	-
PV array 1-2	SA tracking	SA tracking	0	0	-
PV array 1-3	SA tracking	SA tracking	0	0	-
PV array 1-4	SA tracking	SA tracking	0	0	-
PV array 1-5	SA tracking	SA tracking	0	0	-
PV array 1-6	SA tracking	SA tracking	0	0	-
PV array 1-7	SA tracking	SA tracking	0	0	-
PV array 1-8	SA tracking	SA tracking	0	0	-
PV array 1-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Results for: PV array 1-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare

0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 1-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West 1-2nd**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:06 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

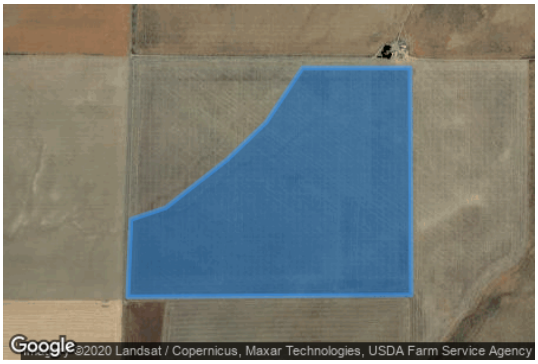
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46938.8449

PV Array(s)

Name: PV array 1-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186226	-119.558406	1361.27	7.00	1368.27
2	46.186256	-119.538880	1389.29	7.00	1396.29
3	46.182364	-119.538880	1372.25	7.00	1379.25
4	46.182215	-119.558364	1346.31	7.00	1353.31

Name: PV array 1-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.213261	-119.525075	1464.23	7.00	1471.23
2	46.213261	-119.517264	1469.49	7.00	1476.49
3	46.201886	-119.517178	1478.00	7.00	1485.00
4	46.201797	-119.537777	1452.42	7.00	1459.42
5	46.205673	-119.537541	1435.13	7.00	1442.13
6	46.206252	-119.535031	1435.99	7.00	1442.99
7	46.208658	-119.530568	1450.69	7.00	1457.69
8	46.210529	-119.527735	1455.28	7.00	1462.28

Name: PV array 1-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.201745	-119.537781	1452.74	7.00	1459.74
2	46.201745	-119.527181	1488.16	7.00	1495.16
3	46.187426	-119.526923	1391.33	7.00	1398.33
4	46.187367	-119.537824	1396.71	7.00	1403.71

Name: PV array 1-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.201884	-119.527277	1486.99	7.00	1493.99
2	46.201944	-119.517234	1477.58	7.00	1484.58
3	46.198082	-119.517320	1444.74	7.00	1451.74
4	46.194339	-119.519981	1428.46	7.00	1435.46
5	46.192141	-119.522985	1417.08	7.00	1424.09
6	46.188992	-119.525217	1401.43	7.00	1408.44
7	46.187447	-119.526976	1392.25	7.00	1399.25

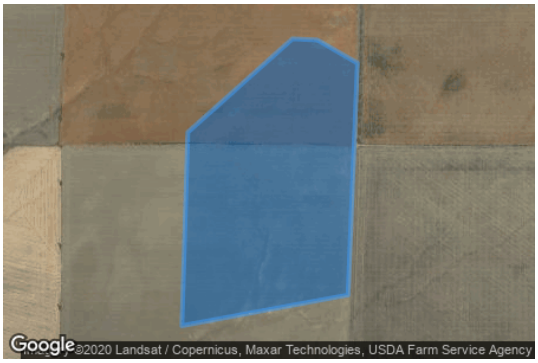
Name: PV array 1-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182274	-119.555274	1348.90	7.00	1355.90
2	46.177580	-119.558836	1327.94	7.00	1334.94
3	46.175767	-119.558879	1325.17	7.00	1332.17
4	46.175826	-119.547978	1326.17	7.00	1333.17
5	46.177164	-119.547034	1332.79	7.00	1339.79
6	46.180640	-119.545489	1350.21	7.00	1357.21
7	46.182364	-119.545103	1358.34	7.00	1365.34

Name: PV array 1-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

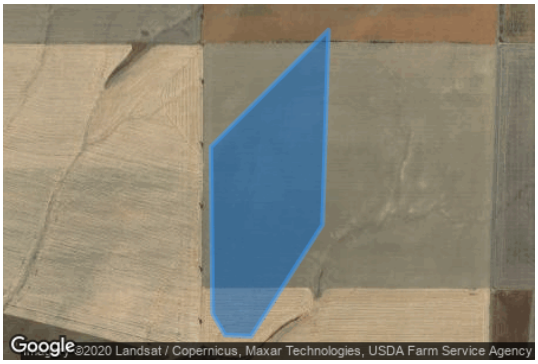
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.182334	-119.544073	1355.58	7.00	1362.58
2	46.179600	-119.544416	1343.33	7.00	1350.33
3	46.178471	-119.545060	1344.26	7.00	1351.26
4	46.176302	-119.545360	1332.42	7.00	1339.42
5	46.174281	-119.547334	1327.65	7.00	1334.65
6	46.173806	-119.547377	1331.44	7.00	1338.44
7	46.173865	-119.538751	1348.97	7.00	1355.97
8	46.182423	-119.538837	1372.51	7.00	1379.51

Name: PV array 1-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



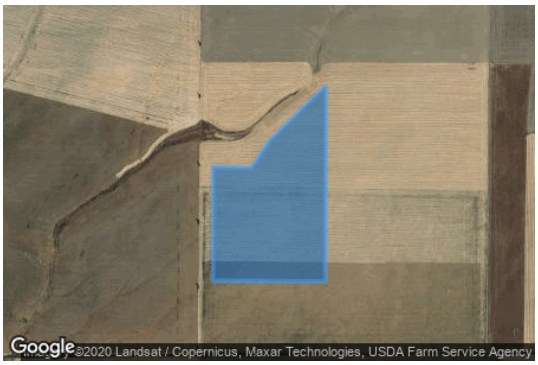
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.206362	-119.538174	1441.16	7.00	1448.16
2	46.218003	-119.537488	1503.05	7.00	1510.05
3	46.219161	-119.540406	1525.83	7.00	1532.83
4	46.219220	-119.542208	1523.71	7.00	1530.71
5	46.214529	-119.549804	1493.85	7.00	1500.85
6	46.204817	-119.550233	1427.67	7.00	1434.67

Name: PV array 1-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



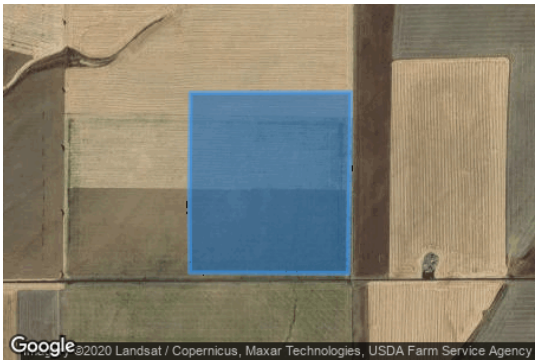
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200362	-119.558302	1416.39	7.00	1423.39
2	46.199293	-119.557400	1406.00	7.00	1413.00
3	46.199233	-119.555512	1413.98	7.00	1420.98
4	46.204817	-119.550319	1427.75	7.00	1434.75
5	46.214558	-119.549890	1493.74	7.00	1500.74
6	46.208708	-119.558430	1482.25	7.00	1489.25

Name: PV array 1-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



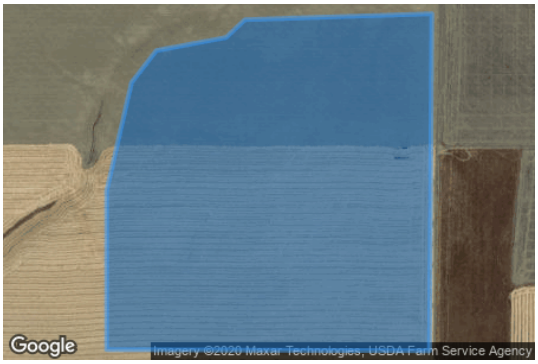
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.200456	-119.549994	1414.14	7.00	1421.14
2	46.190683	-119.550037	1389.49	7.00	1396.49
3	46.190712	-119.558191	1373.62	7.00	1380.62
4	46.196416	-119.558191	1407.05	7.00	1414.05
5	46.196357	-119.555401	1409.91	7.00	1416.91
6	46.197723	-119.554071	1412.48	7.00	1419.48
7	46.199060	-119.552097	1418.14	7.00	1425.14

Name: PV array 1-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.46°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



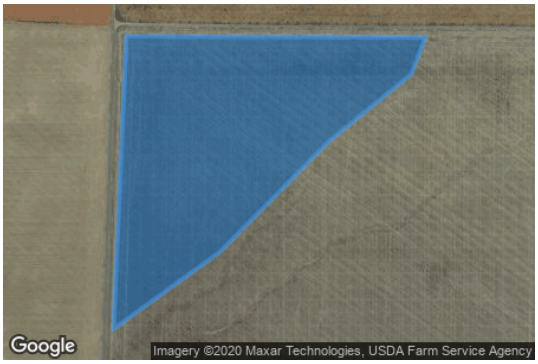
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.190742	-119.550123	1390.05	7.00	1397.05
2	46.187444	-119.550080	1375.64	7.00	1382.64
3	46.187415	-119.538578	1392.91	7.00	1399.91
4	46.196476	-119.538407	1433.60	7.00	1440.60
5	46.196446	-119.550037	1435.72	7.00	1442.72

Name: PV array 1-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.196505	-119.550080	1435.49	7.00	1442.49
2	46.196476	-119.538364	1434.33	7.00	1441.33
3	46.204911	-119.538278	1431.71	7.00	1438.71
4	46.204763	-119.545059	1424.34	7.00	1431.34
5	46.204317	-119.545745	1428.41	7.00	1435.41
6	46.203991	-119.548277	1424.69	7.00	1431.69
7	46.203189	-119.549179	1422.57	7.00	1429.57
8	46.200486	-119.550080	1412.92	7.00	1419.92

Name: PV array 1-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.213558	-119.537091	1464.05	7.00	1471.05
2	46.213528	-119.526233	1460.74	7.00	1467.74
3	46.212608	-119.526748	1464.19	7.00	1471.19
4	46.210915	-119.529752	1454.38	7.00	1461.38
5	46.208153	-119.533701	1445.36	7.00	1452.36
6	46.206223	-119.537563	1440.36	7.00	1447.36

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.157483	-119.496755	1415.78	16.00
OP 2	2	46.136308	-119.572725	1188.75	16.00
OP 3	3	46.228568	-119.537703	1473.44	16.00
OP 4	4	46.201261	-119.599865	1347.21	16.00

Route Receptor(s)

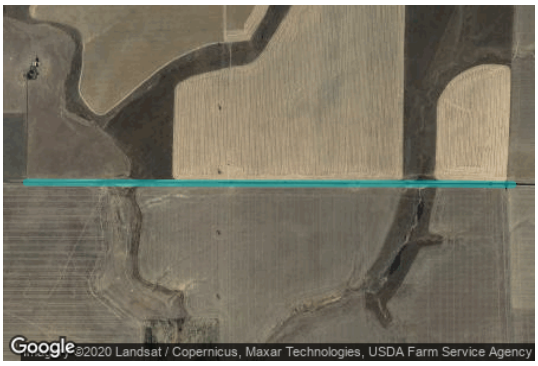
Name: Country Well Rd
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186942	-119.571627	1317.23	9.00	1326.23
2	46.186972	-119.558538	1363.75	9.00	1372.75
3	46.187061	-119.541157	1385.48	9.00	1394.48
4	46.187061	-119.531201	1399.83	9.00	1408.83
5	46.187120	-119.521502	1423.59	9.00	1432.59
6	46.187135	-119.508649	1435.66	9.00	1444.66
7	46.187165	-119.499529	1447.66	9.00	1456.66
8	46.187180	-119.493908	1455.78	9.00	1464.78

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	9.00	1192.15
2	46.130919	-119.562151	1181.49	9.00	1190.49
3	46.130904	-119.554555	1215.70	9.00	1224.70
4	46.130889	-119.542899	1221.76	9.00	1230.76
5	46.130844	-119.538050	1246.26	9.00	1255.26

Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	9.00	1256.09
2	46.130696	-119.530857	1270.87	9.00	1279.87
3	46.130547	-119.521759	1298.29	9.00	1307.29
4	46.130443	-119.515729	1303.92	9.00	1312.92
5	46.130370	-119.508138	1302.79	9.00	1311.79
6	46.130281	-119.499812	1345.74	9.00	1354.74
7	46.130221	-119.492731	1360.96	9.00	1369.96
8	46.130177	-119.483955	1386.73	9.00	1395.73
9	46.130117	-119.475694	1406.43	9.00	1415.43

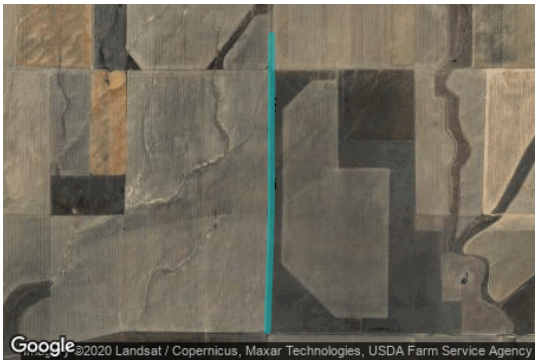
Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	9.00	1513.91
2	46.155270	-119.454195	1512.40	9.00	1521.40
3	46.151152	-119.454667	1487.89	9.00	1496.89
4	46.147584	-119.454753	1498.02	9.00	1507.02
5	46.142991	-119.454688	1492.24	9.00	1501.24
6	46.136984	-119.454495	1455.52	9.00	1464.52
7	46.131308	-119.454323	1437.90	9.00	1446.90

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161059	-119.600993	1218.15	9.00	1227.15
2	46.155946	-119.600993	1197.87	9.00	1206.87
3	46.150446	-119.601057	1172.58	9.00	1181.58
4	46.145035	-119.601014	1147.99	9.00	1156.99
5	46.139043	-119.601229	1127.91	9.00	1136.91
6	46.135178	-119.601422	1111.14	9.00	1120.14
7	46.131490	-119.601594	1098.20	9.00	1107.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161258	-119.601002	1220.31	9.00	1229.31
2	46.165909	-119.600938	1232.02	9.00	1241.02
3	46.170902	-119.600895	1251.25	9.00	1260.25
4	46.178436	-119.600916	1294.24	9.00	1303.24
5	46.183985	-119.600938	1328.54	9.00	1337.54
6	46.184743	-119.601281	1334.45	9.00	1343.45
7	46.185560	-119.601968	1335.54	9.00	1344.54
8	46.186110	-119.602890	1339.61	9.00	1348.61

Name: WA-221-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.186273	-119.603363	1338.88	9.00	1347.88
2	46.186615	-119.604457	1338.58	9.00	1347.58
3	46.186749	-119.605937	1332.06	9.00	1341.06
4	46.186689	-119.611280	1330.41	9.00	1339.41
5	46.186674	-119.615701	1344.05	9.00	1353.05
6	46.186674	-119.622095	1349.76	9.00	1358.76
7	46.186719	-119.626730	1353.10	9.00	1362.10

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 1-1	SA tracking	SA tracking	0	0	-
PV array 1-10	SA tracking	SA tracking	0	0	-
PV array 1-11	SA tracking	SA tracking	0	0	-
PV array 1-12	SA tracking	SA tracking	0	0	-
PV array 1-2	SA tracking	SA tracking	0	0	-
PV array 1-3	SA tracking	SA tracking	0	0	-
PV array 1-4	SA tracking	SA tracking	0	0	-
PV array 1-5	SA tracking	SA tracking	0	0	-
PV array 1-6	SA tracking	SA tracking	0	0	-
PV array 1-7	SA tracking	SA tracking	0	0	-
PV array 1-8	SA tracking	SA tracking	0	0	-
PV array 1-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Results for: PV array 1-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare

0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 1-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 1-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
Country Well Rd	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
S Travis Road-1	0	0
WA-221-1	0	0
WA-221-2	0	0
WA-221-3	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Route: Country Well Rd

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-3

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West2-1st Floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 21:36 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

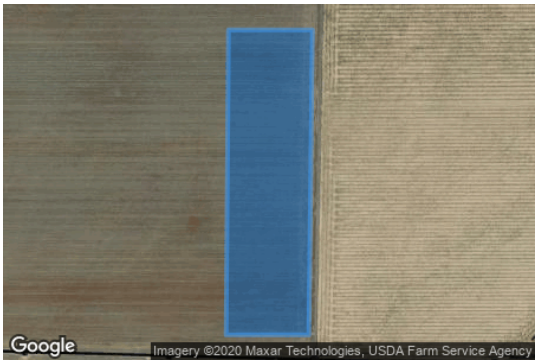
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46937.8449

PV Array(s)

Name: PV array 2-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.129706	-119.538246	1244.06	7.00	1251.06
2	46.127238	-119.538161	1241.57	7.00	1248.57
3	46.127149	-119.517561	1301.28	7.00	1308.28
4	46.129469	-119.517647	1299.76	7.00	1306.76

Name: PV array 2-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

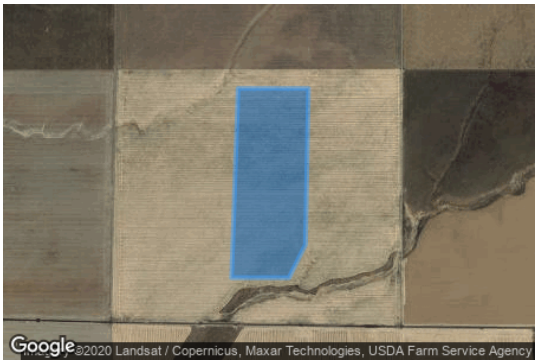


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.138739	-119.520554	1306.61	7.00	1313.61
2	46.138739	-119.517507	1318.60	7.00	1325.60
3	46.131096	-119.517636	1306.18	7.00	1313.18
4	46.131096	-119.520640	1303.84	7.00	1310.84

Name: PV array 2-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.139481	-119.516282	1316.28	7.00	1323.28
2	46.138797	-119.516926	1320.81	7.00	1327.81
3	46.131154	-119.517141	1304.42	7.00	1311.42
4	46.131035	-119.511004	1309.38	7.00	1316.38
5	46.132671	-119.508600	1325.82	7.00	1332.82
6	46.142187	-119.508128	1341.08	7.00	1348.08
7	46.142157	-119.508772	1337.73	7.00	1344.73
8	46.140522	-119.511819	1326.80	7.00	1333.80

Name: PV array 2-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

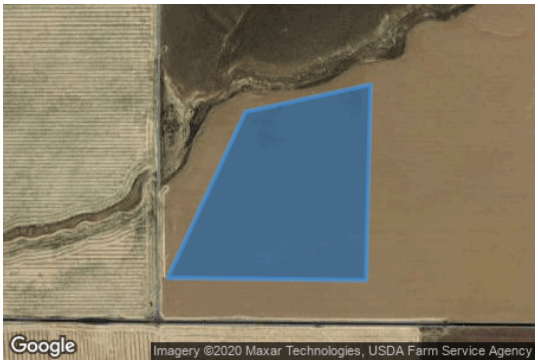


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.132731	-119.508686	1325.82	7.00	1332.82
2	46.132731	-119.504524	1323.39	7.00	1330.39
3	46.134396	-119.503322	1340.92	7.00	1347.92
4	46.142217	-119.503107	1364.22	7.00	1371.22
5	46.142217	-119.508214	1340.93	7.00	1347.93

Name: PV array 2-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

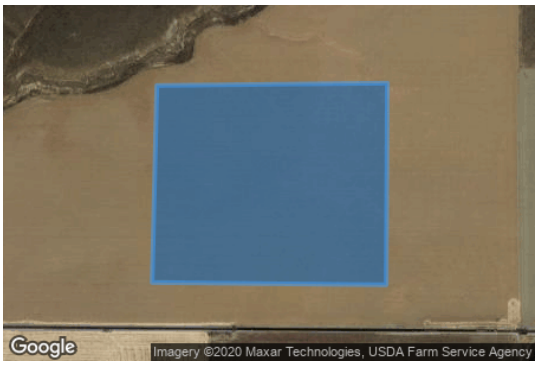
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.134455	-119.503408	1341.36	7.00	1348.36
2	46.133861	-119.500704	1346.09	7.00	1353.09
3	46.133920	-119.497786	1352.12	7.00	1359.12
4	46.135511	-119.496734	1348.19	7.00	1355.19
5	46.137221	-119.496455	1365.53	7.00	1372.53
6	46.142247	-119.496455	1388.24	7.00	1395.24
7	46.142247	-119.503150	1364.24	7.00	1371.24

Name: PV array 2-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



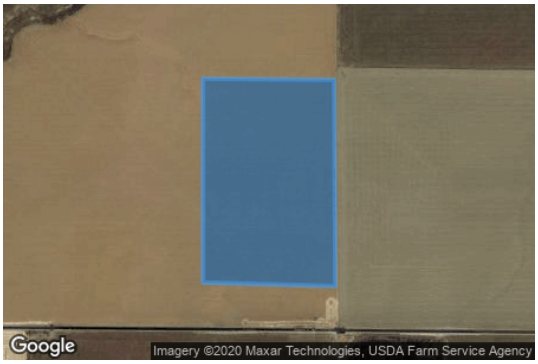
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.495989	1350.79	7.00	1357.79
2	46.131305	-119.488779	1384.33	7.00	1391.33
3	46.136212	-119.488607	1359.75	7.00	1366.75
4	46.135528	-119.493156	1351.98	7.00	1358.98

Name: PV array 2-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



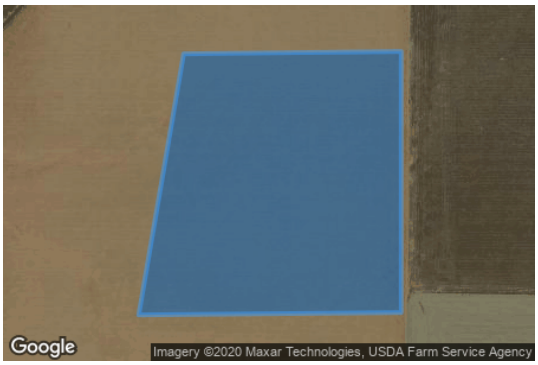
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.488865	1384.99	7.00	1391.99
2	46.131305	-119.480367	1398.89	7.00	1405.89
3	46.136361	-119.480324	1400.78	7.00	1407.78
4	46.136301	-119.488693	1355.83	7.00	1362.83

Name: PV array 2-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



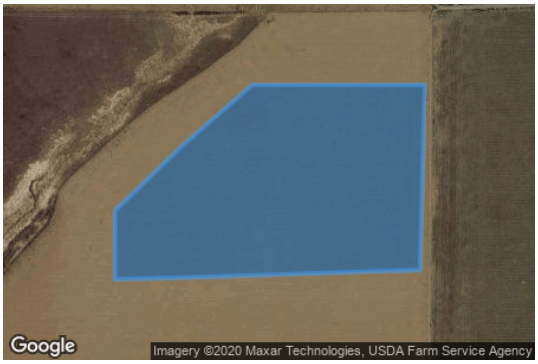
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136450	-119.480410	1399.88	7.00	1406.88
2	46.136420	-119.475647	1421.86	7.00	1428.86
3	46.131245	-119.475604	1413.32	7.00	1420.32
4	46.131335	-119.480410	1399.47	7.00	1406.47

Name: PV array 2-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



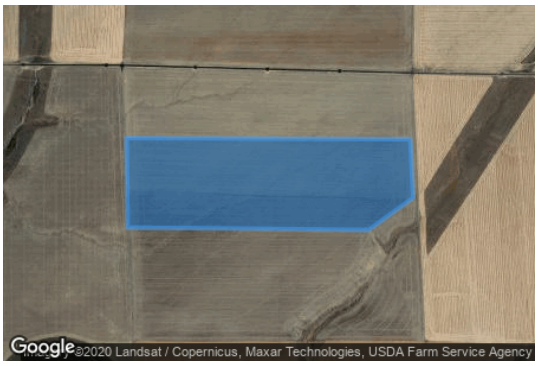
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136479	-119.475690	1420.73	7.00	1427.73
2	46.139751	-119.475690	1433.42	7.00	1440.42
3	46.139721	-119.479638	1411.17	7.00	1418.18
4	46.136450	-119.480453	1399.73	7.00	1406.74

Name: PV array 2-18
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



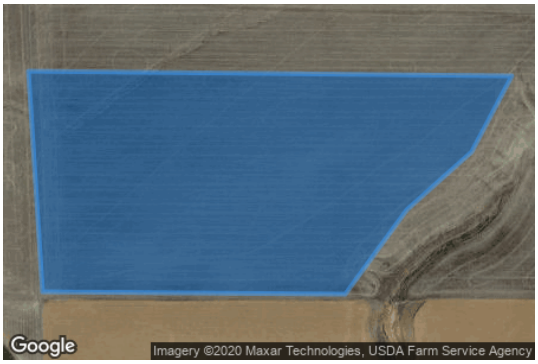
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.139810	-119.475733	1432.94	7.00	1439.94
2	46.142129	-119.475647	1420.18	7.00	1427.18
3	46.142129	-119.478780	1394.02	7.00	1401.02
4	46.141356	-119.480067	1394.82	7.00	1401.82
5	46.140553	-119.481269	1386.66	7.00	1393.66
6	46.139691	-119.481269	1395.40	7.00	1402.40
7	46.139721	-119.479681	1411.13	7.00	1418.13

Name: PV array 2-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



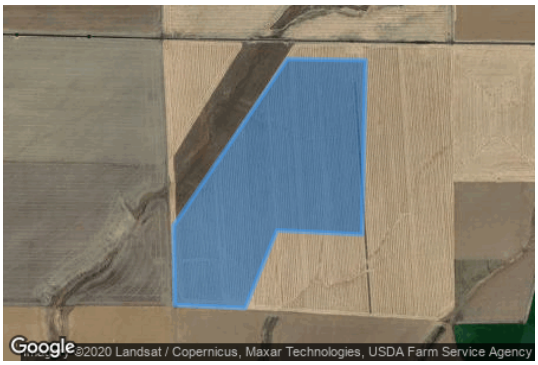
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.127238	-119.538203	1241.38	7.00	1248.38
2	46.122746	-119.538118	1237.40	7.00	1244.40
3	46.122628	-119.520608	1269.48	7.00	1276.49
4	46.124234	-119.517390	1284.60	7.00	1291.60
5	46.127178	-119.517604	1301.23	7.00	1308.23

Name: PV array 2-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.122776	-119.538203	1237.89	7.00	1244.89
2	46.117243	-119.537689	1220.47	7.00	1227.47
3	46.117184	-119.526702	1246.77	7.00	1253.77
4	46.119296	-119.524471	1256.58	7.00	1263.58
5	46.120754	-119.522110	1266.27	7.00	1273.27
6	46.122657	-119.520651	1269.94	7.00	1276.94

Name: PV array 2-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

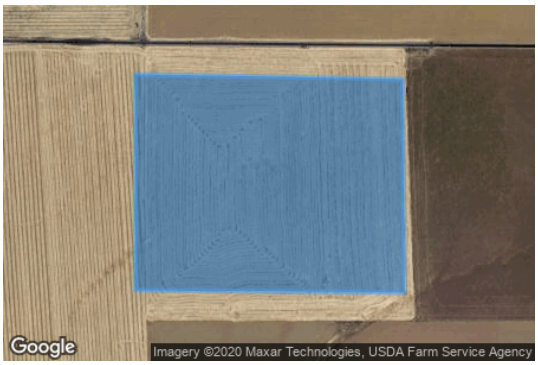


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.121116	-119.516591	1271.22	7.00	1278.22
2	46.117130	-119.516505	1249.39	7.00	1256.39
3	46.116982	-119.511398	1278.19	7.00	1285.19
4	46.120878	-119.509081	1298.03	7.00	1305.03
5	46.120670	-119.502901	1307.13	7.00	1314.13
6	46.129413	-119.502650	1335.25	7.00	1342.25
7	46.129472	-119.508315	1312.03	7.00	1319.03

Name: PV array 2-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

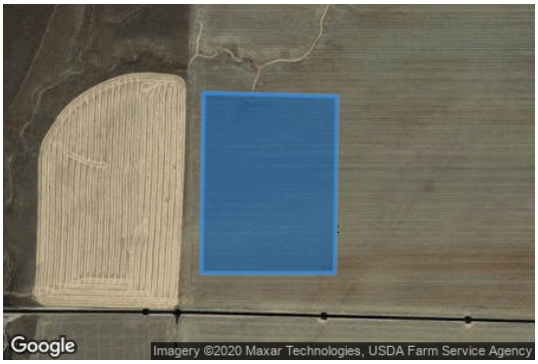
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.120727	-119.503080	1306.81	7.00	1313.81
2	46.117336	-119.502736	1296.43	7.00	1303.43
3	46.117217	-119.497415	1305.85	7.00	1312.85
4	46.117753	-119.496556	1300.34	7.00	1307.34
5	46.129413	-119.496471	1350.77	7.00	1357.77
6	46.129413	-119.502908	1334.48	7.00	1341.48

Name: PV array 2-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



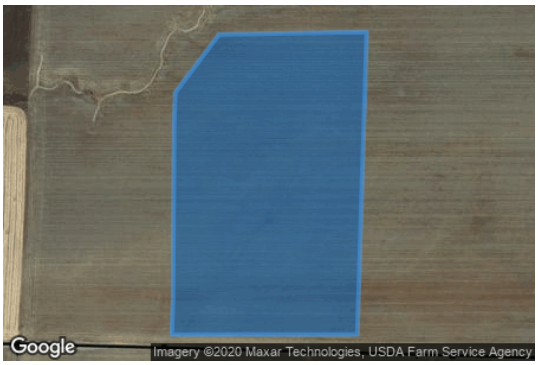
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.129472	-119.496642	1351.12	7.00	1358.12
2	46.129353	-119.486943	1375.32	7.00	1382.32
3	46.123999	-119.486858	1342.30	7.00	1349.30
4	46.124059	-119.496642	1338.21	7.00	1345.21

Name: PV array 2-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.43°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



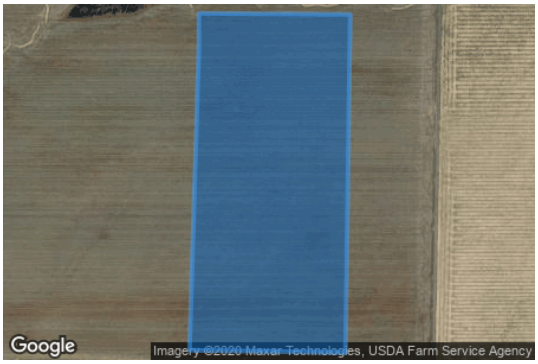
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136360	-119.537548	1251.82	7.00	1258.82
2	46.136271	-119.532699	1273.84	7.00	1280.84
3	46.131840	-119.532785	1267.48	7.00	1274.48
4	46.131840	-119.537634	1248.75	7.00	1255.75

Name: PV array 2-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136360	-119.532828	1271.34	7.00	1278.34
2	46.137163	-119.532785	1264.52	7.00	1271.52
3	46.138620	-119.531197	1272.00	7.00	1279.00
4	46.138679	-119.525833	1297.72	7.00	1304.72
5	46.131096	-119.526176	1288.04	7.00	1295.04
6	46.131096	-119.532914	1265.63	7.00	1272.63
7	46.131929	-119.532871	1267.81	7.00	1274.81

Name: PV array 2-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.138739	-119.525918	1297.22	7.00	1304.22
2	46.139542	-119.525918	1290.88	7.00	1297.88
3	46.139512	-119.520425	1302.20	7.00	1309.20
4	46.131037	-119.520597	1303.84	7.00	1310.84
5	46.131096	-119.526262	1287.91	7.00	1294.91

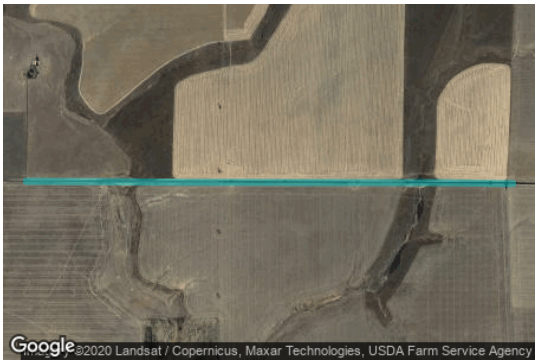
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.142763	-119.459696	1493.13	6.00
OP 2	2	46.157483	-119.496755	1415.78	6.00
OP 3	3	46.136308	-119.572725	1188.75	6.00
OP 4	4	46.061492	-119.561396	992.85	6.00
OP 5	5	46.129143	-119.360406	1793.71	6.00

Route Receptor(s)

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	5.00	1188.15
2	46.130919	-119.562151	1181.49	5.00	1186.49
3	46.130904	-119.554555	1215.70	5.00	1220.70
4	46.130889	-119.542899	1221.76	5.00	1226.76
5	46.130844	-119.538050	1246.26	5.00	1251.26

Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	5.00	1252.09
2	46.130696	-119.530857	1270.87	5.00	1275.87
3	46.130547	-119.521759	1298.29	5.00	1303.29
4	46.130443	-119.515729	1303.92	5.00	1308.92
5	46.130370	-119.508138	1302.79	5.00	1307.79
6	46.130281	-119.499812	1345.74	5.00	1350.74
7	46.130221	-119.492731	1360.96	5.00	1365.96
8	46.130177	-119.483955	1386.73	5.00	1391.73
9	46.130117	-119.475694	1406.43	5.00	1411.43

Name: Sellards Road 3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130132	-119.474878	1407.37	5.00	1412.37
2	46.130058	-119.463634	1421.43	5.00	1426.43
3	46.129998	-119.456566	1422.72	5.00	1427.72
4	46.129894	-119.448626	1479.50	5.00	1484.50
5	46.129835	-119.443391	1507.31	5.00	1512.31
6	46.129760	-119.437039	1525.78	5.00	1530.78

Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	5.00	1509.91
2	46.155270	-119.454195	1512.40	5.00	1517.40
3	46.151152	-119.454667	1487.89	5.00	1492.89
4	46.147584	-119.454753	1498.02	5.00	1503.02
5	46.142991	-119.454688	1492.24	5.00	1497.24
6	46.136984	-119.454495	1455.52	5.00	1460.52
7	46.131308	-119.454323	1437.90	5.00	1442.90

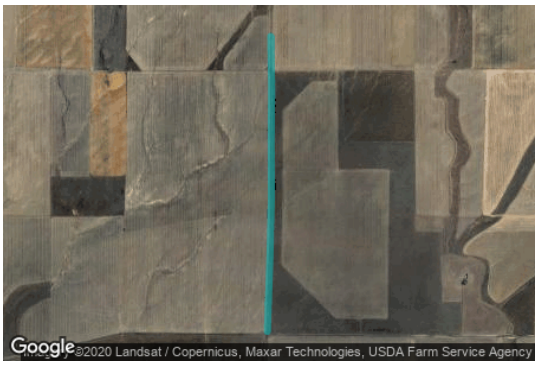
Name: S Travis Road-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.100269	-119.453967	1399.71	5.00	1404.71
2	46.103423	-119.453945	1413.05	5.00	1418.05
3	46.106785	-119.453924	1429.66	5.00	1434.66
4	46.109404	-119.453902	1409.11	5.00	1414.11
5	46.114542	-119.453881	1361.62	5.00	1366.62
6	46.117770	-119.453902	1409.03	5.00	1414.03

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161044	-119.601121	1218.99	5.00	1223.99
2	46.155946	-119.600993	1197.87	5.00	1202.87
3	46.150446	-119.601057	1172.58	5.00	1177.58
4	46.145035	-119.601014	1147.99	5.00	1152.99
5	46.139043	-119.601229	1127.91	5.00	1132.91
6	46.135178	-119.601422	1111.14	5.00	1116.14
7	46.131490	-119.601594	1098.20	5.00	1103.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.096573	-119.601872	1001.79	5.00	1006.79
2	46.101126	-119.601786	1015.06	5.00	1020.06
3	46.105717	-119.601851	1023.67	5.00	1028.67
4	46.108826	-119.601808	1030.84	5.00	1035.84
5	46.112188	-119.601829	1049.84	5.00	1054.84
6	46.116725	-119.601765	1063.69	5.00	1068.69
7	46.122005	-119.601679	1081.37	5.00	1086.37
8	46.124890	-119.601679	1087.24	5.00	1092.24

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 2-1	SA tracking	SA tracking	0	0	-
PV array 2-10	SA tracking	SA tracking	0	0	-
PV array 2-11	SA tracking	SA tracking	0	0	-
PV array 2-12	SA tracking	SA tracking	0	0	-
PV array 2-13	SA tracking	SA tracking	0	0	-
PV array 2-14	SA tracking	SA tracking	0	0	-
PV array 2-15	SA tracking	SA tracking	0	0	-
PV array 2-16	SA tracking	SA tracking	0	0	-
PV array 2-17	SA tracking	SA tracking	0	0	-
PV array 2-18	SA tracking	SA tracking	0	0	-
PV array 2-2	SA tracking	SA tracking	0	0	-
PV array 2-3	SA tracking	SA tracking	0	0	-
PV array 2-4	SA tracking	SA tracking	0	0	-
PV array 2-5	SA tracking	SA tracking	0	0	-
PV array 2-6	SA tracking	SA tracking	0	0	-
PV array 2-7	SA tracking	SA tracking	0	0	-
PV array 2-8	SA tracking	SA tracking	0	0	-
PV array 2-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Results for: PV array 2-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-18

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven West2-2nd floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 21:37 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

SITE CONFIGURATION

Analysis Parameters

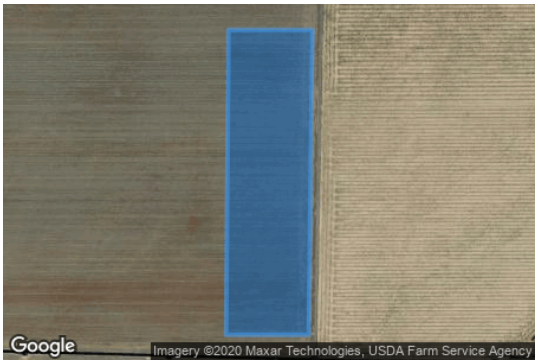
DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46890.8449

PV Array(s)

Name: PV array 2-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.129706	-119.538246	1244.06	7.00	1251.06
2	46.127238	-119.538161	1241.57	7.00	1248.57
3	46.127149	-119.517561	1301.28	7.00	1308.28
4	46.129469	-119.517647	1299.76	7.00	1306.76

Name: PV array 2-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

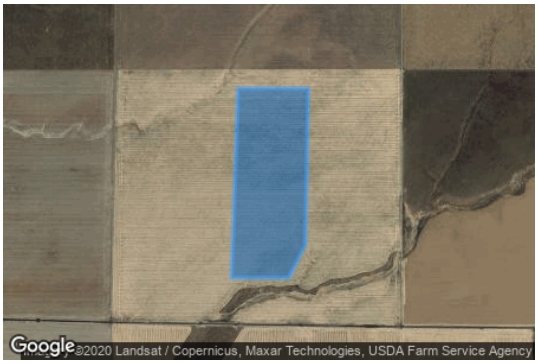


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.138739	-119.520554	1306.61	7.00	1313.61
2	46.138739	-119.517507	1318.60	7.00	1325.60
3	46.131096	-119.517636	1306.18	7.00	1313.18
4	46.131096	-119.520640	1303.84	7.00	1310.84

Name: PV array 2-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.139481	-119.516282	1316.28	7.00	1323.28
2	46.138797	-119.516926	1320.81	7.00	1327.81
3	46.131154	-119.517141	1304.42	7.00	1311.42
4	46.131035	-119.511004	1309.38	7.00	1316.38
5	46.132671	-119.508600	1325.82	7.00	1332.82
6	46.142187	-119.508128	1341.08	7.00	1348.08
7	46.142157	-119.508772	1337.73	7.00	1344.73
8	46.140522	-119.511819	1326.80	7.00	1333.80

Name: PV array 2-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

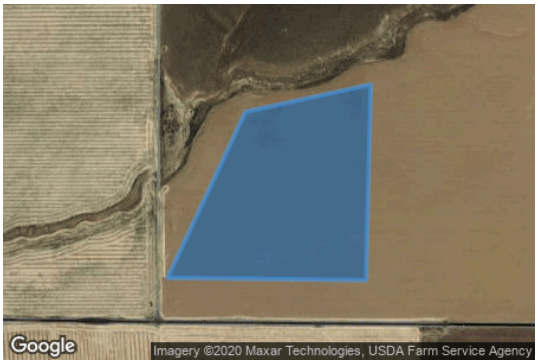


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.132731	-119.508686	1325.82	7.00	1332.82
2	46.132731	-119.504524	1323.39	7.00	1330.39
3	46.134396	-119.503322	1340.92	7.00	1347.92
4	46.142217	-119.503107	1364.22	7.00	1371.22
5	46.142217	-119.508214	1340.93	7.00	1347.93

Name: PV array 2-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.75°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

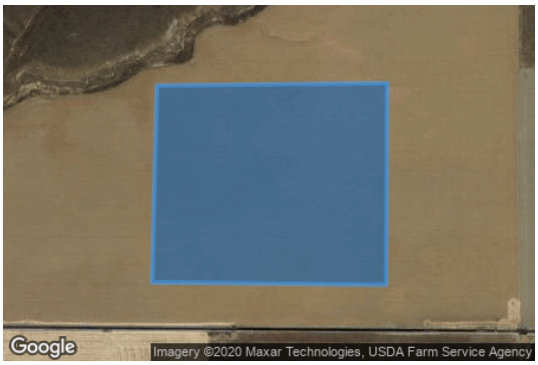
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.134455	-119.503408	1341.36	7.00	1348.36
2	46.133861	-119.500704	1346.09	7.00	1353.09
3	46.133920	-119.497786	1352.12	7.00	1359.12
4	46.135511	-119.496734	1348.19	7.00	1355.19
5	46.137221	-119.496455	1365.53	7.00	1372.53
6	46.142247	-119.496455	1388.24	7.00	1395.24
7	46.142247	-119.503150	1364.24	7.00	1371.24

Name: PV array 2-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



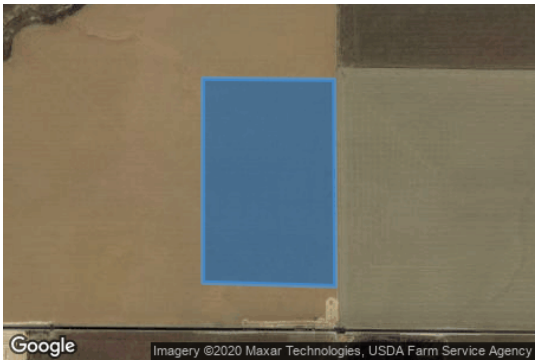
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.495989	1350.79	7.00	1357.79
2	46.131305	-119.488779	1384.33	7.00	1391.33
3	46.136212	-119.488607	1359.75	7.00	1366.75
4	46.135528	-119.493156	1351.98	7.00	1358.98

Name: PV array 2-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



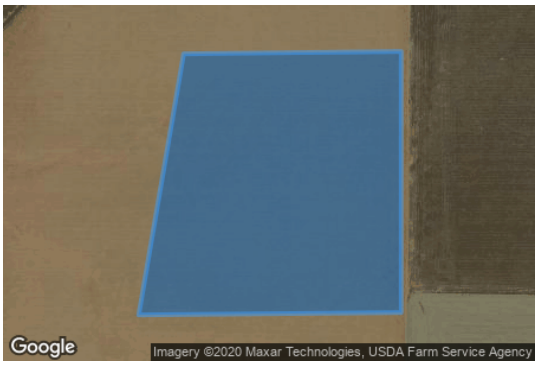
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.131364	-119.488865	1384.99	7.00	1391.99
2	46.131305	-119.480367	1398.89	7.00	1405.89
3	46.136361	-119.480324	1400.78	7.00	1407.78
4	46.136301	-119.488693	1355.83	7.00	1362.83

Name: PV array 2-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.2°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



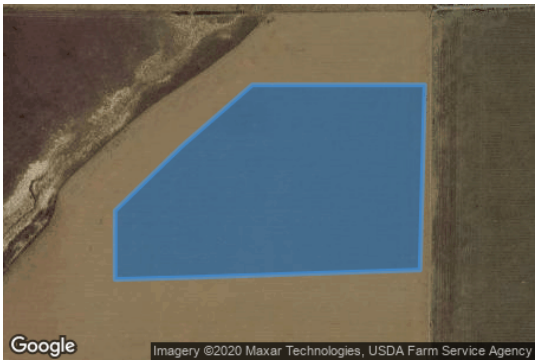
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136450	-119.480410	1399.88	7.00	1406.88
2	46.136420	-119.475647	1421.86	7.00	1428.86
3	46.131245	-119.475604	1413.32	7.00	1420.32
4	46.131335	-119.480410	1399.47	7.00	1406.47

Name: PV array 2-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



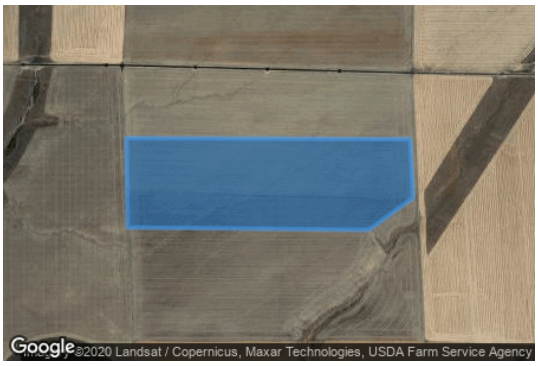
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136479	-119.475690	1420.73	7.00	1427.73
2	46.139751	-119.475690	1433.42	7.00	1440.42
3	46.139721	-119.479638	1411.17	7.00	1418.18
4	46.136450	-119.480453	1399.73	7.00	1406.74

Name: PV array 2-18
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.55°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



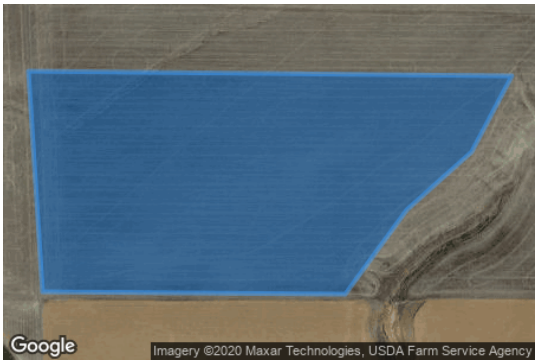
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.139810	-119.475733	1432.94	7.00	1439.94
2	46.142129	-119.475647	1420.18	7.00	1427.18
3	46.142129	-119.478780	1394.02	7.00	1401.02
4	46.141356	-119.480067	1394.82	7.00	1401.82
5	46.140553	-119.481269	1386.66	7.00	1393.66
6	46.139691	-119.481269	1395.40	7.00	1402.40
7	46.139721	-119.479681	1411.13	7.00	1418.13

Name: PV array 2-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



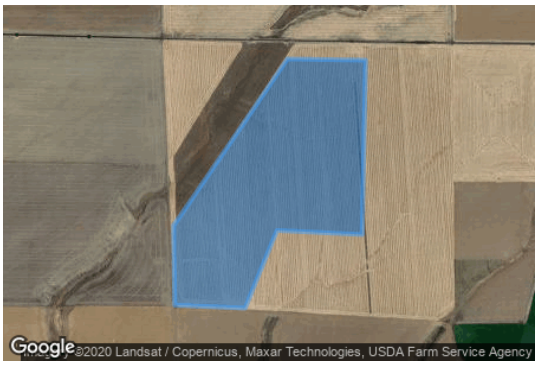
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.127238	-119.538203	1241.38	7.00	1248.38
2	46.122746	-119.538118	1237.40	7.00	1244.40
3	46.122628	-119.520608	1269.48	7.00	1276.49
4	46.124234	-119.517390	1284.60	7.00	1291.60
5	46.127178	-119.517604	1301.23	7.00	1308.23

Name: PV array 2-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.122776	-119.538203	1237.89	7.00	1244.89
2	46.117243	-119.537689	1220.47	7.00	1227.47
3	46.117184	-119.526702	1246.77	7.00	1253.77
4	46.119296	-119.524471	1256.58	7.00	1263.58
5	46.120754	-119.522110	1266.27	7.00	1273.27
6	46.122657	-119.520651	1269.94	7.00	1276.94

Name: PV array 2-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

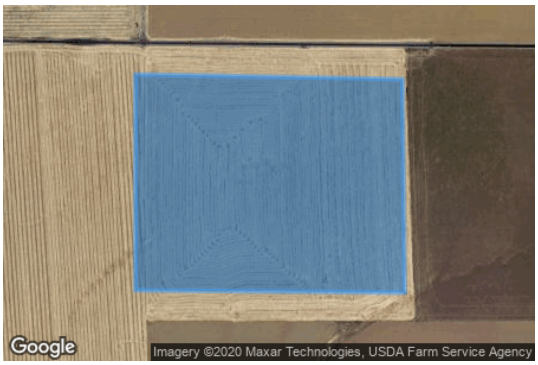


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.121116	-119.516591	1271.22	7.00	1278.22
2	46.117130	-119.516505	1249.39	7.00	1256.39
3	46.116982	-119.511398	1278.19	7.00	1285.19
4	46.120878	-119.509081	1298.03	7.00	1305.03
5	46.120670	-119.502901	1307.13	7.00	1314.13
6	46.129413	-119.502650	1335.25	7.00	1342.25
7	46.129472	-119.508315	1312.03	7.00	1319.03

Name: PV array 2-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

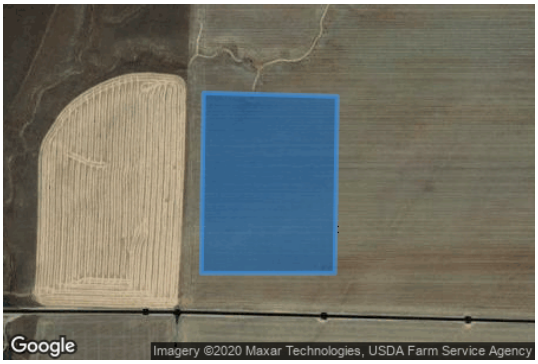
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.120727	-119.503080	1306.81	7.00	1313.81
2	46.117336	-119.502736	1296.43	7.00	1303.43
3	46.117217	-119.497415	1305.85	7.00	1312.85
4	46.117753	-119.496556	1300.34	7.00	1307.34
5	46.129413	-119.496471	1350.77	7.00	1357.77
6	46.129413	-119.502908	1334.48	7.00	1341.48

Name: PV array 2-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



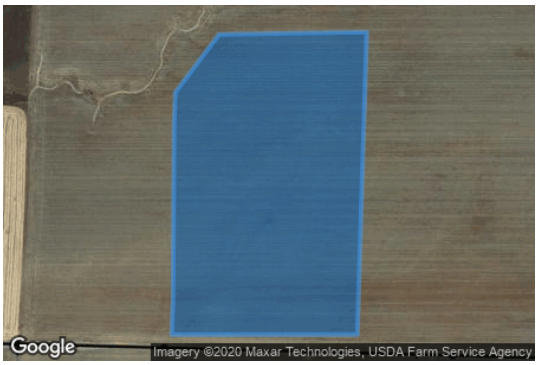
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.129472	-119.496642	1351.12	7.00	1358.12
2	46.129353	-119.486943	1375.32	7.00	1382.32
3	46.123999	-119.486858	1342.30	7.00	1349.30
4	46.124059	-119.496642	1338.21	7.00	1345.21

Name: PV array 2-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.43°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



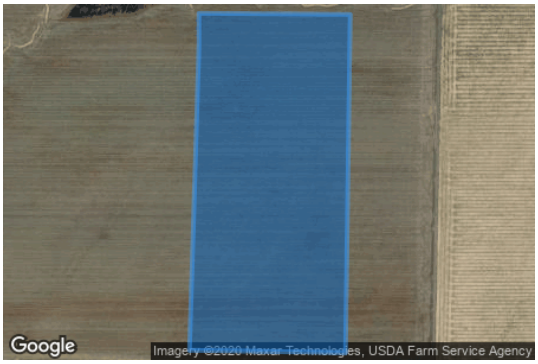
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136360	-119.537548	1251.82	7.00	1258.82
2	46.136271	-119.532699	1273.84	7.00	1280.84
3	46.131840	-119.532785	1267.48	7.00	1274.48
4	46.131840	-119.537634	1248.75	7.00	1255.75

Name: PV array 2-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.136360	-119.532828	1271.34	7.00	1278.34
2	46.137163	-119.532785	1264.52	7.00	1271.52
3	46.138620	-119.531197	1272.00	7.00	1279.00
4	46.138679	-119.525833	1297.72	7.00	1304.72
5	46.131096	-119.526176	1288.04	7.00	1295.04
6	46.131096	-119.532914	1265.63	7.00	1272.63
7	46.131929	-119.532871	1267.81	7.00	1274.81

Name: PV array 2-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.14°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.138739	-119.525918	1297.22	7.00	1304.22
2	46.139542	-119.525918	1290.88	7.00	1297.88
3	46.139512	-119.520425	1302.20	7.00	1309.20
4	46.131037	-119.520597	1303.84	7.00	1310.84
5	46.131096	-119.526262	1287.91	7.00	1294.91

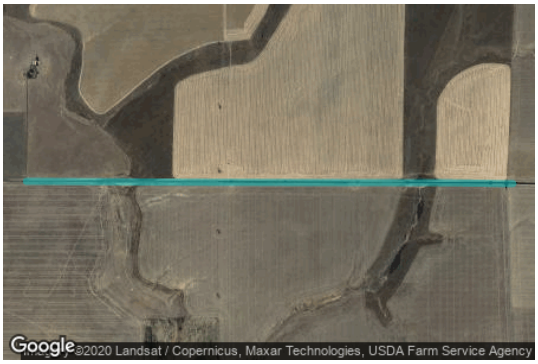
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.142763	-119.459696	1493.13	16.00
OP 2	2	46.157483	-119.496755	1415.78	16.00
OP 3	3	46.136308	-119.572725	1188.75	16.00
OP 4	4	46.061492	-119.561396	992.85	16.00
OP 5	5	46.129147	-119.360395	1793.60	16.00

Route Receptor(s)

Name: Sellards Road 1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130963	-119.573374	1183.15	9.00	1192.15
2	46.130919	-119.562151	1181.49	9.00	1190.49
3	46.130904	-119.554555	1215.70	9.00	1224.70
4	46.130889	-119.542899	1221.76	9.00	1230.76
5	46.130844	-119.538050	1246.26	9.00	1255.26

Name: Sellards Road 2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130844	-119.537878	1247.08	9.00	1256.09
2	46.130696	-119.530857	1270.87	9.00	1279.87
3	46.130547	-119.521759	1298.29	9.00	1307.29
4	46.130443	-119.515729	1303.92	9.00	1312.92
5	46.130370	-119.508138	1302.79	9.00	1311.79
6	46.130281	-119.499812	1345.74	9.00	1354.74
7	46.130221	-119.492731	1360.96	9.00	1369.96
8	46.130177	-119.483955	1386.73	9.00	1395.73
9	46.130117	-119.475694	1406.43	9.00	1415.43

Name: Sellards Road 3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.130132	-119.474878	1407.37	9.00	1416.37
2	46.130058	-119.463634	1421.43	9.00	1430.43
3	46.129998	-119.456566	1422.72	9.00	1431.72
4	46.129894	-119.448626	1479.50	9.00	1488.50
5	46.129835	-119.443391	1507.31	9.00	1516.31
6	46.129760	-119.437039	1525.78	9.00	1534.78

Name: S Travis Road-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.158019	-119.454002	1504.91	9.00	1513.91
2	46.155270	-119.454195	1512.40	9.00	1521.40
3	46.151152	-119.454667	1487.89	9.00	1496.89
4	46.147584	-119.454753	1498.02	9.00	1507.02
5	46.142991	-119.454688	1492.24	9.00	1501.24
6	46.136984	-119.454495	1455.52	9.00	1464.52
7	46.131308	-119.454323	1437.90	9.00	1446.90

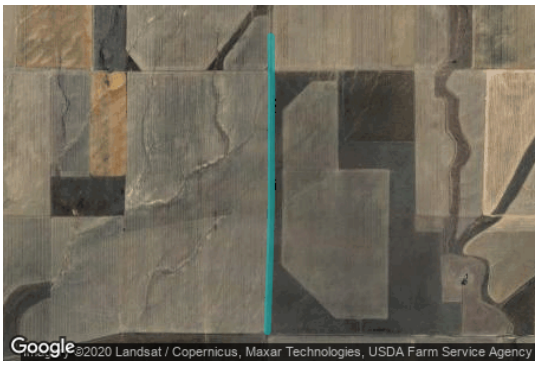
Name: S Travis Road-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.100269	-119.453967	1399.71	9.00	1408.71
2	46.103423	-119.453945	1413.05	9.00	1422.05
3	46.106785	-119.453924	1429.66	9.00	1438.67
4	46.109404	-119.453902	1409.11	9.00	1418.11
5	46.114542	-119.453881	1361.62	9.00	1370.62
6	46.117770	-119.453902	1409.03	9.00	1418.03

Name: WA-221-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.161044	-119.601121	1218.99	9.00	1227.99
2	46.155946	-119.600993	1197.87	9.00	1206.87
3	46.150446	-119.601057	1172.58	9.00	1181.58
4	46.145035	-119.601014	1147.99	9.00	1156.99
5	46.139043	-119.601229	1127.91	9.00	1136.91
6	46.135178	-119.601422	1111.14	9.00	1120.14
7	46.131490	-119.601594	1098.20	9.00	1107.20

Name: WA-221-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.096573	-119.601872	1001.79	9.00	1010.79
2	46.101126	-119.601786	1015.06	9.00	1024.06
3	46.105717	-119.601851	1023.67	9.00	1032.67
4	46.108826	-119.601808	1030.84	9.00	1039.84
5	46.112188	-119.601829	1049.84	9.00	1058.84
6	46.116725	-119.601765	1063.69	9.00	1072.69
7	46.122005	-119.601679	1081.37	9.00	1090.37
8	46.124890	-119.601679	1087.24	9.00	1096.24

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 2-1	SA tracking	SA tracking	0	0	-
PV array 2-10	SA tracking	SA tracking	0	0	-
PV array 2-11	SA tracking	SA tracking	0	0	-
PV array 2-12	SA tracking	SA tracking	0	0	-
PV array 2-13	SA tracking	SA tracking	0	0	-
PV array 2-14	SA tracking	SA tracking	0	0	-
PV array 2-15	SA tracking	SA tracking	0	0	-
PV array 2-16	SA tracking	SA tracking	0	0	-
PV array 2-17	SA tracking	SA tracking	0	0	-
PV array 2-18	SA tracking	SA tracking	0	0	-
PV array 2-2	SA tracking	SA tracking	0	0	-
PV array 2-3	SA tracking	SA tracking	0	0	-
PV array 2-4	SA tracking	SA tracking	0	0	-
PV array 2-5	SA tracking	SA tracking	0	0	-
PV array 2-6	SA tracking	SA tracking	0	0	-
PV array 2-7	SA tracking	SA tracking	0	0	-
PV array 2-8	SA tracking	SA tracking	0	0	-
PV array 2-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Results for: PV array 2-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-18

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 2-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 2-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
Sellards Road 1	0	0
Sellards Road 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
Sellards Road 3	0	0
S Travis Road-1	0	0
S Travis Road-2	0	0
WA-221-1	0	0
WA-221-2	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 1

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 2

0 minutes of yellow glare
0 minutes of green glare

Route: Sellards Road 3

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-1

0 minutes of yellow glare
0 minutes of green glare

Route: S Travis Road-2

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-1

0 minutes of yellow glare
0 minutes of green glare

Route: WA-221-2

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East1-1st floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:09 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

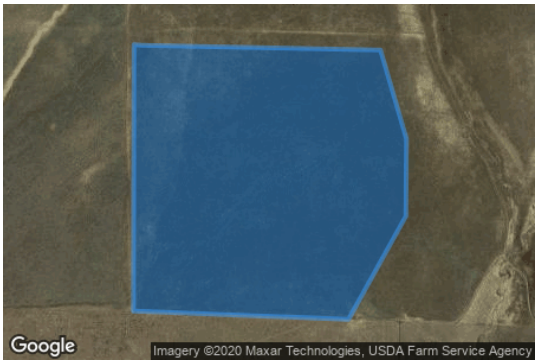
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46953.8449

PV Array(s)

Name: PV array 3-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

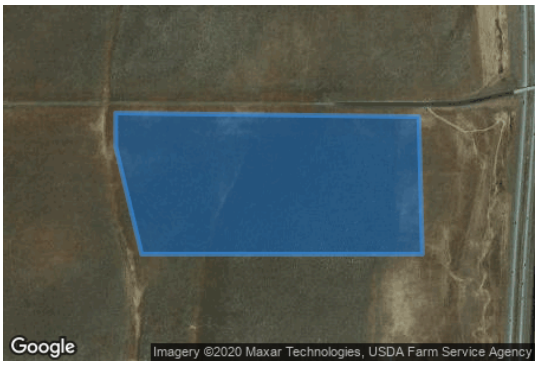


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.069382	-119.264454	1544.06	7.00	1551.06
2	46.069263	-119.255786	1496.36	7.00	1503.36
3	46.067030	-119.254841	1465.97	7.00	1472.97
4	46.065094	-119.254863	1458.20	7.00	1465.20
5	46.062504	-119.256944	1443.28	7.00	1450.28
6	46.062712	-119.264755	1455.44	7.00	1462.44
7	46.069397	-119.264733	1546.85	7.00	1553.85

Name: PV array 3-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061648	-119.244412	1444.08	7.00	1451.08
2	46.061693	-119.239627	1424.05	7.00	1431.05
3	46.058998	-119.239391	1389.17	7.00	1396.17
4	46.058298	-119.239091	1378.12	7.00	1385.12
5	46.055737	-119.239091	1342.19	7.00	1349.19
6	46.055796	-119.244648	1362.40	7.00	1369.40
7	46.058476	-119.244627	1394.29	7.00	1401.29

Name: PV array 3-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061901	-119.238576	1428.54	7.00	1435.54
2	46.061052	-119.238576	1409.07	7.00	1416.07
3	46.058357	-119.237632	1369.29	7.00	1376.29
4	46.058357	-119.227439	1362.09	7.00	1369.09
5	46.061812	-119.227568	1414.75	7.00	1421.75

Name: PV array 3-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.058357	-119.234005	1375.86	7.00	1382.86
2	46.057434	-119.234134	1368.01	7.00	1375.01
3	46.056511	-119.234670	1355.03	7.00	1362.03
4	46.055856	-119.234692	1350.69	7.00	1357.69
5	46.055871	-119.232825	1362.74	7.00	1369.74
6	46.055022	-119.232825	1354.50	7.00	1361.50
7	46.055022	-119.229563	1346.52	7.00	1353.52
8	46.056064	-119.228812	1354.02	7.00	1361.02
9	46.056913	-119.227482	1351.79	7.00	1358.79
10	46.058372	-119.227461	1362.76	7.00	1369.76

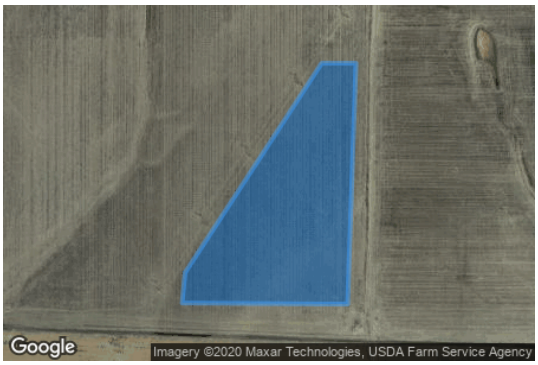
Name: PV array 3-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060736	-119.221786	1390.15	7.00	1397.15
2	46.060706	-119.217752	1410.38	7.00	1417.38
3	46.061689	-119.217752	1398.79	7.00	1405.79
4	46.061600	-119.214233	1427.63	7.00	1434.63
5	46.060796	-119.214276	1420.95	7.00	1427.95
6	46.054750	-119.219898	1338.12	7.00	1345.13
7	46.054810	-119.222902	1329.50	7.00	1336.50
8	46.058026	-119.222816	1365.76	7.00	1372.76

Name: PV array 3-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

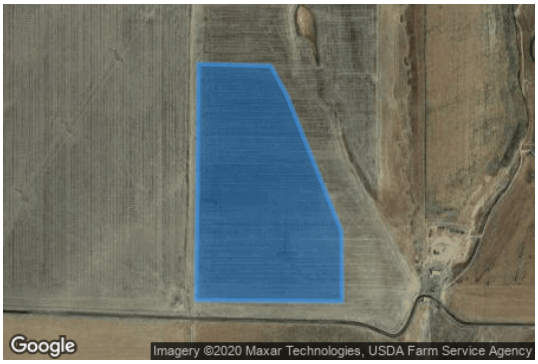
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.058324	-119.215134	1376.23	7.00	1383.23
2	46.057967	-119.203676	1398.27	7.00	1405.27
3	46.054572	-119.203719	1365.49	7.00	1372.49
4	46.054482	-119.212645	1352.42	7.00	1359.42
5	46.054780	-119.213975	1350.65	7.00	1357.65
6	46.054840	-119.217580	1329.72	7.00	1336.72
7	46.055733	-119.217494	1344.77	7.00	1351.77

Name: PV array 3-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062523	-119.204276	1453.41	7.00	1460.41
2	46.068567	-119.203976	1534.61	7.00	1541.61
3	46.068567	-119.205221	1533.03	7.00	1540.03
4	46.063312	-119.210177	1461.61	7.00	1468.61
5	46.062553	-119.210285	1458.01	7.00	1465.01

Name: PV array 3-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

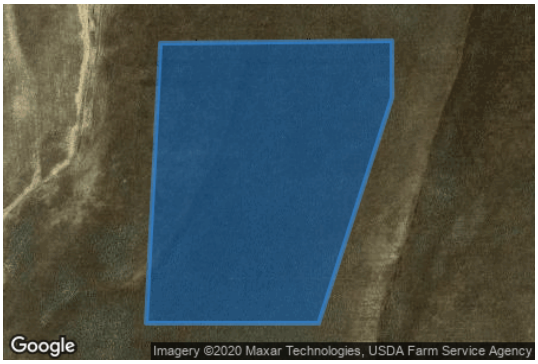


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.067962	-119.203168	1531.20	7.00	1538.20
2	46.067917	-119.200550	1490.05	7.00	1497.05
3	46.067158	-119.199949	1481.33	7.00	1488.33
4	46.063763	-119.197975	1435.30	7.00	1442.30
5	46.062006	-119.197954	1429.33	7.00	1436.33
6	46.062036	-119.203254	1451.51	7.00	1458.51

Name: PV array 3-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.23°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

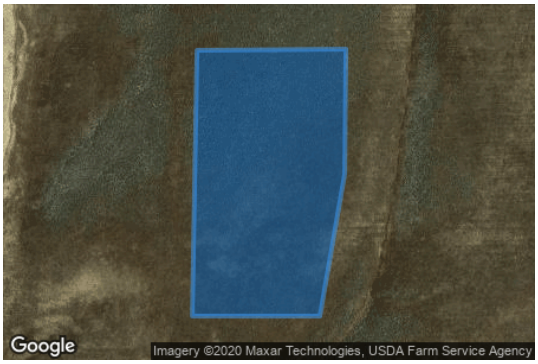
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061167	-119.203211	1444.79	7.00	1451.79
2	46.061137	-119.199370	1437.31	7.00	1444.31
3	46.058606	-119.197138	1390.82	7.00	1397.82
4	46.056774	-119.195700	1356.80	7.00	1363.80
5	46.054407	-119.195679	1346.44	7.00	1353.44
6	46.054451	-119.203318	1363.90	7.00	1370.90

Name: PV array 3-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



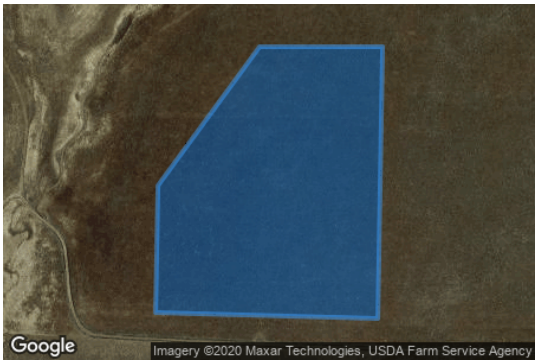
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076111	-119.243769	1553.84	7.00	1560.84
2	46.076140	-119.239563	1570.47	7.00	1577.47
3	46.075426	-119.239563	1564.52	7.00	1571.52
4	46.072598	-119.240893	1541.36	7.00	1548.36
5	46.072598	-119.244026	1506.08	7.00	1513.08

Name: PV array 3-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



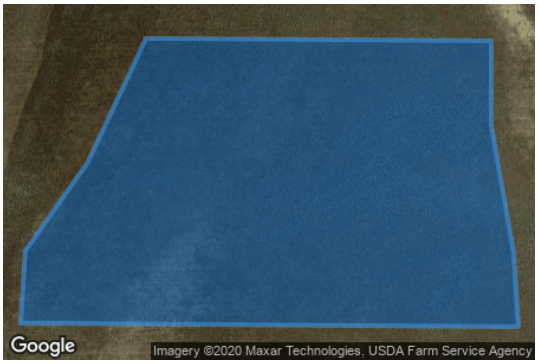
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071824	-119.243812	1515.23	7.00	1522.23
2	46.071838	-119.241108	1533.04	7.00	1540.04
3	46.070275	-119.241129	1511.95	7.00	1518.95
4	46.068489	-119.241580	1481.38	7.00	1488.38
5	46.068489	-119.243898	1477.93	7.00	1484.93

Name: PV array 3-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065943	-119.246923	1442.79	7.00	1449.79
2	46.065943	-119.244691	1470.32	7.00	1477.32
3	46.062534	-119.244777	1457.64	7.00	1464.64
4	46.062608	-119.248811	1423.57	7.00	1430.57
5	46.064201	-119.248768	1412.68	7.00	1419.68

Name: PV array 3-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.12°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

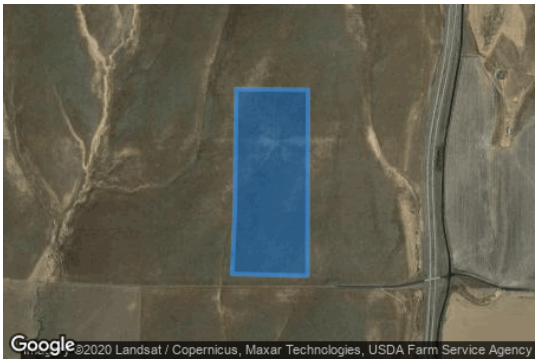


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076141	-119.236412	1597.99	7.00	1604.99
2	46.076111	-119.230146	1594.28	7.00	1601.28
3	46.075054	-119.230146	1579.54	7.00	1586.54
4	46.073447	-119.229738	1547.68	7.00	1554.69
5	46.072524	-119.229653	1535.47	7.00	1542.47
6	46.072569	-119.238686	1542.55	7.00	1549.55
7	46.073477	-119.238600	1545.59	7.00	1552.59
8	46.074593	-119.237463	1574.18	7.00	1581.18

Name: PV array 3-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065952	-119.237925	1463.27	7.00	1470.27
2	46.072056	-119.237774	1553.44	7.00	1560.45
3	46.072026	-119.239298	1527.90	7.00	1534.90
4	46.069421	-119.240028	1499.29	7.00	1506.29
5	46.068587	-119.240650	1480.07	7.00	1487.07
6	46.067605	-119.241916	1472.01	7.00	1479.01
7	46.067024	-119.243954	1460.39	7.00	1467.39
8	46.062796	-119.244190	1466.14	7.00	1473.14
9	46.062766	-119.239234	1436.41	7.00	1443.41
10	46.064374	-119.238729	1449.26	7.00	1456.26

Name: PV array 3-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

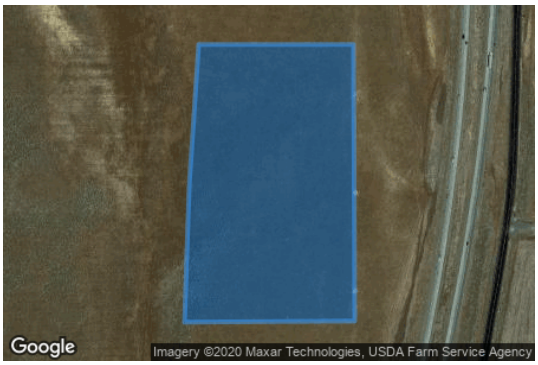


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.072075	-119.237810	1553.56	7.00	1560.57
2	46.072045	-119.232596	1553.16	7.00	1560.16
3	46.062681	-119.232639	1413.33	7.00	1420.33
4	46.062770	-119.238111	1441.44	7.00	1448.44
5	46.065971	-119.237917	1463.55	7.00	1470.55

Name: PV array 3-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.072071	-119.232642	1553.37	7.00	1560.37
2	46.072041	-119.229144	1520.15	7.00	1527.15
3	46.068468	-119.227900	1477.31	7.00	1484.31
4	46.066339	-119.226376	1445.67	7.00	1452.67
5	46.064642	-119.226333	1437.59	7.00	1444.59
6	46.062736	-119.227342	1420.78	7.00	1427.78
7	46.062707	-119.232663	1413.56	7.00	1420.56

Name: PV array 3-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076121	-119.227108	1576.89	7.00	1583.89
2	46.076121	-119.224297	1556.62	7.00	1563.63
3	46.072653	-119.224276	1509.97	7.00	1516.97
4	46.072638	-119.227366	1523.47	7.00	1530.47
5	46.074350	-119.227280	1544.55	7.00	1551.55

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	6.00
OP 2	2	46.125919	-119.219932	1320.29	6.00
OP 3	3	46.077101	-119.145764	1804.81	6.00
OP 4	4	46.065913	-119.078615	1520.73	6.00
OP 5	5	46.017217	-119.129341	1560.78	6.00
OP 6	6	46.100638	-119.351684	1835.32	6.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	5.00	1442.68
2	46.062165	-119.245439	1451.19	5.00	1456.19
3	46.062105	-119.242972	1440.64	5.00	1445.64
4	46.062143	-119.239603	1430.92	5.00	1435.92
5	46.062113	-119.236824	1424.17	5.00	1429.17
6	46.062128	-119.234152	1412.82	5.00	1417.82
7	46.062105	-119.231588	1420.12	5.00	1425.12
8	46.062098	-119.228252	1423.29	5.00	1428.29
9	46.062098	-119.226556	1405.15	5.00	1410.15
10	46.062388	-119.224142	1375.78	5.00	1380.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	5.00	1432.46
2	46.061785	-119.211922	1443.52	5.00	1448.52
3	46.061696	-119.208124	1462.60	5.00	1467.60
4	46.061622	-119.205484	1447.52	5.00	1452.52
5	46.061547	-119.202823	1447.47	5.00	1452.47
6	46.061510	-119.199894	1440.39	5.00	1445.39
7	46.061480	-119.197910	1421.95	5.00	1426.95
8	46.061383	-119.197062	1392.62	5.00	1397.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	5.00	1438.77
2	46.061267	-119.183567	1418.60	5.00	1423.60
3	46.061163	-119.178975	1433.57	5.00	1438.57
4	46.061088	-119.176786	1435.14	5.00	1440.14
5	46.060939	-119.173460	1462.67	5.00	1467.67
6	46.060805	-119.167988	1367.84	5.00	1372.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995519	-119.278077	796.24	5.00	801.24
2	45.996115	-119.275952	803.46	5.00	808.46
3	45.996950	-119.273013	808.72	5.00	813.72
4	45.997457	-119.271038	813.88	5.00	818.88
5	45.997964	-119.268356	815.97	5.00	820.97
6	45.998321	-119.265288	814.61	5.00	819.61
7	45.998634	-119.263206	823.31	5.00	828.31
8	45.998947	-119.261683	823.78	5.00	828.78

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	5.00	1164.99
2	46.040459	-119.224690	1191.05	5.00	1196.05
3	46.042857	-119.224615	1214.84	5.00	1219.84
4	46.046186	-119.224550	1238.13	5.00	1243.13
5	46.048100	-119.224507	1248.38	5.00	1253.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	5.00	1294.13
2	46.057039	-119.224186	1313.71	5.00	1318.71
3	46.059696	-119.223950	1337.57	5.00	1342.57
4	46.062116	-119.223714	1348.33	5.00	1353.33
5	46.063009	-119.223660	1358.35	5.00	1363.35
6	46.064401	-119.223714	1378.78	5.00	1383.78
7	46.066173	-119.223832	1404.38	5.00	1409.38
8	46.067614	-119.223907	1425.76	5.00	1430.76
9	46.069192	-119.223724	1448.15	5.00	1453.15
10	46.070763	-119.223424	1468.64	5.00	1473.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	5.00	1582.60
2	46.082650	-119.222785	1589.94	5.00	1594.94
3	46.083878	-119.223032	1600.74	5.00	1605.74
4	46.085166	-119.223268	1615.92	5.00	1620.92
5	46.086163	-119.223451	1625.07	5.00	1630.07
6	46.087257	-119.223633	1633.34	5.00	1638.34
7	46.088760	-119.223697	1639.56	5.00	1644.56
8	46.089943	-119.223612	1639.85	5.00	1644.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 3-1	SA tracking	SA tracking	0	0	-
PV array 3-10	SA tracking	SA tracking	0	0	-
PV array 3-11	SA tracking	SA tracking	0	0	-
PV array 3-12	SA tracking	SA tracking	0	0	-
PV array 3-13	SA tracking	SA tracking	0	0	-
PV array 3-14	SA tracking	SA tracking	0	0	-
PV array 3-15	SA tracking	SA tracking	0	0	-
PV array 3-16	SA tracking	SA tracking	0	0	-
PV array 3-17	SA tracking	SA tracking	0	0	-
PV array 3-2	SA tracking	SA tracking	0	0	-
PV array 3-3	SA tracking	SA tracking	0	0	-
PV array 3-4	SA tracking	SA tracking	0	0	-
PV array 3-5	SA tracking	SA tracking	0	0	-
PV array 3-6	SA tracking	SA tracking	0	0	-
PV array 3-7	SA tracking	SA tracking	0	0	-
PV array 3-8	SA tracking	SA tracking	0	0	-
PV array 3-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 3-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 3-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East1-2nd floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:10 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

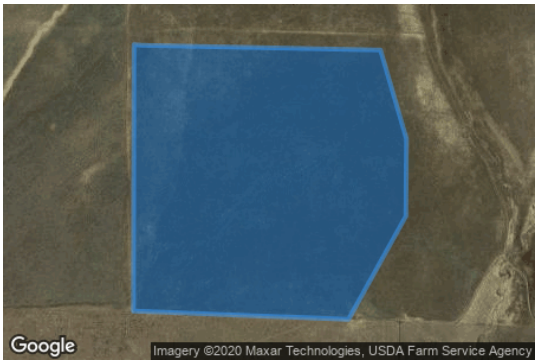
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46961.8449

PV Array(s)

Name: PV array 3-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

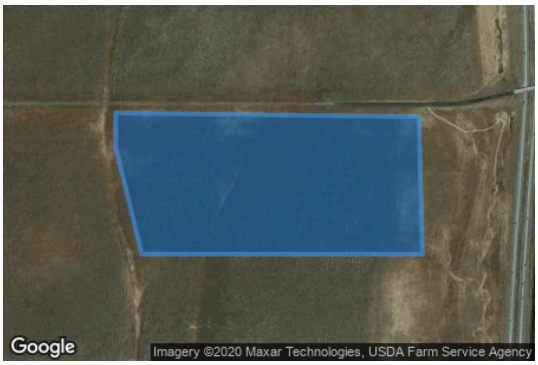


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.069382	-119.264454	1544.06	7.00	1551.06
2	46.069263	-119.255786	1496.36	7.00	1503.36
3	46.067030	-119.254841	1465.97	7.00	1472.97
4	46.065094	-119.254863	1458.20	7.00	1465.20
5	46.062504	-119.256944	1443.28	7.00	1450.28
6	46.062712	-119.264755	1455.44	7.00	1462.44
7	46.069397	-119.264733	1546.85	7.00	1553.85

Name: PV array 3-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061648	-119.244412	1444.08	7.00	1451.08
2	46.061693	-119.239627	1424.05	7.00	1431.05
3	46.058998	-119.239391	1389.17	7.00	1396.17
4	46.058298	-119.239091	1378.12	7.00	1385.12
5	46.055737	-119.239091	1342.19	7.00	1349.19
6	46.055796	-119.244648	1362.40	7.00	1369.40
7	46.058476	-119.244627	1394.29	7.00	1401.29

Name: PV array 3-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061901	-119.238576	1428.54	7.00	1435.54
2	46.061052	-119.238576	1409.07	7.00	1416.07
3	46.058357	-119.237632	1369.29	7.00	1376.29
4	46.058357	-119.227439	1362.09	7.00	1369.09
5	46.061812	-119.227568	1414.75	7.00	1421.75

Name: PV array 3-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.058357	-119.234005	1375.86	7.00	1382.86
2	46.057434	-119.234134	1368.01	7.00	1375.01
3	46.056511	-119.234670	1355.03	7.00	1362.03
4	46.055856	-119.234692	1350.69	7.00	1357.69
5	46.055871	-119.232825	1362.74	7.00	1369.74
6	46.055022	-119.232825	1354.50	7.00	1361.50
7	46.055022	-119.229563	1346.52	7.00	1353.52
8	46.056064	-119.228812	1354.02	7.00	1361.02
9	46.056913	-119.227482	1351.79	7.00	1358.79
10	46.058372	-119.227461	1362.76	7.00	1369.76

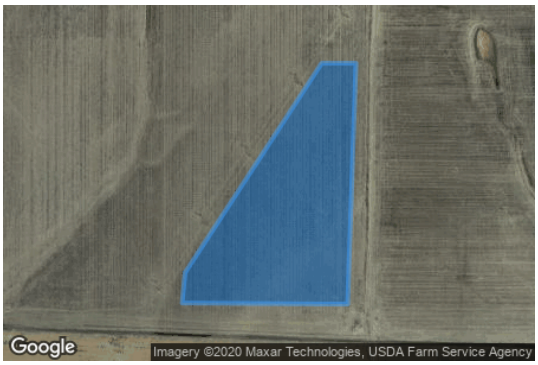
Name: PV array 3-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060736	-119.221786	1390.15	7.00	1397.15
2	46.060706	-119.217752	1410.38	7.00	1417.38
3	46.061689	-119.217752	1398.79	7.00	1405.79
4	46.061600	-119.214233	1427.63	7.00	1434.63
5	46.060796	-119.214276	1420.95	7.00	1427.95
6	46.054750	-119.219898	1338.12	7.00	1345.13
7	46.054810	-119.222902	1329.50	7.00	1336.50
8	46.058026	-119.222816	1365.76	7.00	1372.76

Name: PV array 3-14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

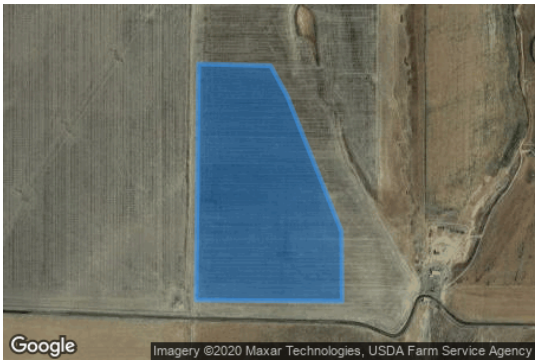
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.058324	-119.215134	1376.23	7.00	1383.23
2	46.057967	-119.203676	1398.27	7.00	1405.27
3	46.054572	-119.203719	1365.49	7.00	1372.49
4	46.054482	-119.212645	1352.42	7.00	1359.42
5	46.054780	-119.213975	1350.65	7.00	1357.65
6	46.054840	-119.217580	1329.72	7.00	1336.72
7	46.055733	-119.217494	1344.77	7.00	1351.77

Name: PV array 3-15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.57°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062523	-119.204276	1453.41	7.00	1460.41
2	46.068567	-119.203976	1534.61	7.00	1541.61
3	46.068567	-119.205221	1533.03	7.00	1540.03
4	46.063312	-119.210177	1461.61	7.00	1468.61
5	46.062553	-119.210285	1458.01	7.00	1465.01

Name: PV array 3-16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

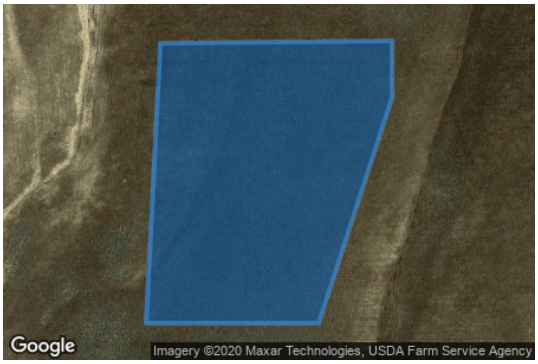


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.067962	-119.203168	1531.20	7.00	1538.20
2	46.067917	-119.200550	1490.05	7.00	1497.05
3	46.067158	-119.199949	1481.33	7.00	1488.33
4	46.063763	-119.197975	1435.30	7.00	1442.30
5	46.062006	-119.197954	1429.33	7.00	1436.33
6	46.062036	-119.203254	1451.51	7.00	1458.51

Name: PV array 3-17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.23°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

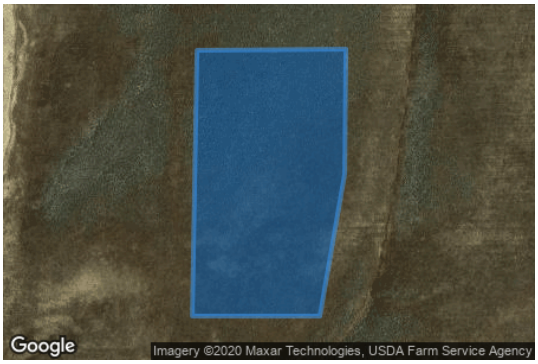
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061167	-119.203211	1444.79	7.00	1451.79
2	46.061137	-119.199370	1437.31	7.00	1444.31
3	46.058606	-119.197138	1390.82	7.00	1397.82
4	46.056774	-119.195700	1356.80	7.00	1363.80
5	46.054407	-119.195679	1346.44	7.00	1353.44
6	46.054451	-119.203318	1363.90	7.00	1370.90

Name: PV array 3-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



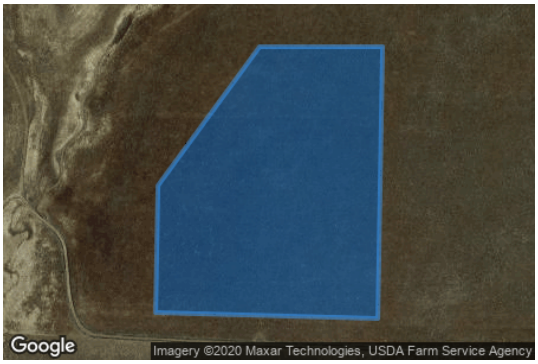
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076111	-119.243769	1553.84	7.00	1560.84
2	46.076140	-119.239563	1570.47	7.00	1577.47
3	46.075426	-119.239563	1564.52	7.00	1571.52
4	46.072598	-119.240893	1541.36	7.00	1548.36
5	46.072598	-119.244026	1506.08	7.00	1513.08

Name: PV array 3-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



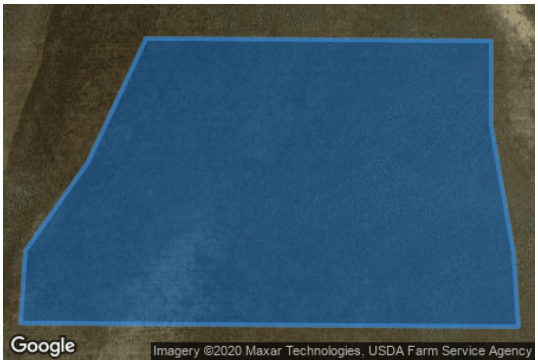
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071824	-119.243812	1515.23	7.00	1522.23
2	46.071838	-119.241108	1533.04	7.00	1540.04
3	46.070275	-119.241129	1511.95	7.00	1518.95
4	46.068489	-119.241580	1481.38	7.00	1488.38
5	46.068489	-119.243898	1477.93	7.00	1484.93

Name: PV array 3-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.86°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065943	-119.246923	1442.79	7.00	1449.79
2	46.065943	-119.244691	1470.32	7.00	1477.32
3	46.062534	-119.244777	1457.64	7.00	1464.64
4	46.062608	-119.248811	1423.57	7.00	1430.57
5	46.064201	-119.248768	1412.68	7.00	1419.68

Name: PV array 3-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.12°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

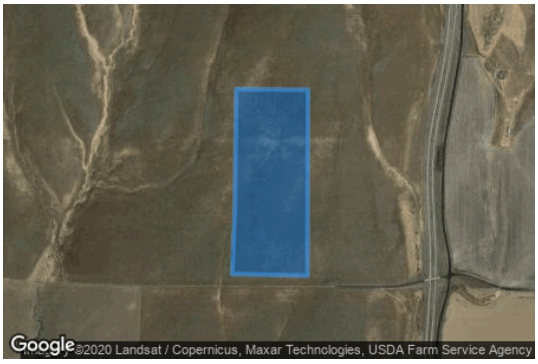


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076141	-119.236412	1597.99	7.00	1604.99
2	46.076111	-119.230146	1594.28	7.00	1601.28
3	46.075054	-119.230146	1579.54	7.00	1586.54
4	46.073447	-119.229738	1547.68	7.00	1554.69
5	46.072524	-119.229653	1535.47	7.00	1542.47
6	46.072569	-119.238686	1542.55	7.00	1549.55
7	46.073477	-119.238600	1545.59	7.00	1552.59
8	46.074593	-119.237463	1574.18	7.00	1581.18

Name: PV array 3-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065952	-119.237925	1463.27	7.00	1470.27
2	46.072056	-119.237774	1553.44	7.00	1560.45
3	46.072026	-119.239298	1527.90	7.00	1534.90
4	46.069421	-119.240028	1499.29	7.00	1506.29
5	46.068587	-119.240650	1480.07	7.00	1487.07
6	46.067605	-119.241916	1472.01	7.00	1479.01
7	46.067024	-119.243954	1460.39	7.00	1467.39
8	46.062796	-119.244190	1466.14	7.00	1473.14
9	46.062766	-119.239234	1436.41	7.00	1443.41
10	46.064374	-119.238729	1449.26	7.00	1456.26

Name: PV array 3-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

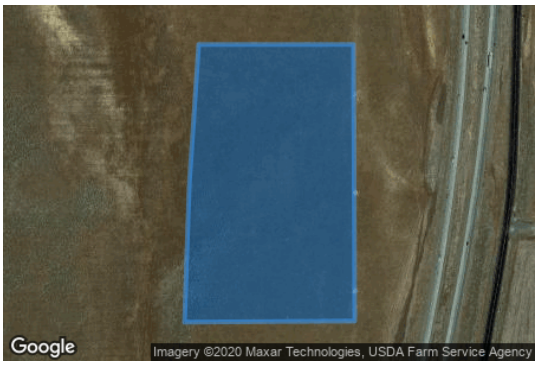


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.072075	-119.237810	1553.56	7.00	1560.57
2	46.072045	-119.232596	1553.16	7.00	1560.16
3	46.062681	-119.232639	1413.33	7.00	1420.33
4	46.062770	-119.238111	1441.44	7.00	1448.44
5	46.065971	-119.237917	1463.55	7.00	1470.55

Name: PV array 3-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.072071	-119.232642	1553.37	7.00	1560.37
2	46.072041	-119.229144	1520.15	7.00	1527.15
3	46.068468	-119.227900	1477.31	7.00	1484.31
4	46.066339	-119.226376	1445.67	7.00	1452.67
5	46.064642	-119.226333	1437.59	7.00	1444.59
6	46.062736	-119.227342	1420.78	7.00	1427.78
7	46.062707	-119.232663	1413.56	7.00	1420.56

Name: PV array 3-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.076121	-119.227108	1576.89	7.00	1583.89
2	46.076121	-119.224297	1556.62	7.00	1563.63
3	46.072653	-119.224276	1509.97	7.00	1516.97
4	46.072638	-119.227366	1523.47	7.00	1530.47
5	46.074350	-119.227280	1544.55	7.00	1551.55

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	16.00
OP 2	2	46.125919	-119.219932	1320.29	16.00
OP 3	3	46.077101	-119.145764	1804.81	16.00
OP 4	4	46.065913	-119.078615	1520.73	16.00
OP 5	5	46.017217	-119.129341	1560.78	16.00
OP 6	6	46.100638	-119.351684	1835.32	16.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	9.00	1446.68
2	46.062165	-119.245439	1451.19	9.00	1460.19
3	46.062105	-119.242972	1440.64	9.00	1449.64
4	46.062143	-119.239603	1430.92	9.00	1439.92
5	46.062113	-119.236824	1424.17	9.00	1433.17
6	46.062128	-119.234152	1412.82	9.00	1421.82
7	46.062105	-119.231588	1420.12	9.00	1429.12
8	46.062098	-119.228252	1423.29	9.00	1432.29
9	46.062098	-119.226556	1405.15	9.00	1414.15
10	46.062388	-119.224142	1375.78	9.00	1384.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	9.00	1436.46
2	46.061785	-119.211922	1443.52	9.00	1452.52
3	46.061696	-119.208124	1462.60	9.00	1471.60
4	46.061622	-119.205484	1447.52	9.00	1456.52
5	46.061547	-119.202823	1447.47	9.00	1456.47
6	46.061510	-119.199894	1440.39	9.00	1449.40
7	46.061480	-119.197910	1421.95	9.00	1430.95
8	46.061383	-119.197062	1392.62	9.00	1401.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	9.00	1442.77
2	46.061267	-119.183567	1418.60	9.00	1427.60
3	46.061163	-119.178975	1433.57	9.00	1442.57
4	46.061088	-119.176786	1435.14	9.00	1444.14
5	46.060939	-119.173460	1462.67	9.00	1471.67
6	46.060805	-119.167988	1367.84	9.00	1376.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995470	-119.278188	796.11	9.00	805.11
2	45.996052	-119.276000	804.07	9.00	813.07
3	45.997006	-119.272802	810.23	9.00	819.23
4	45.997468	-119.270850	813.31	9.00	822.31
5	45.997885	-119.268597	816.89	9.00	825.89
6	45.998362	-119.265335	816.50	9.00	825.50
7	45.998645	-119.263125	823.70	9.00	832.70
8	45.998958	-119.261687	823.48	9.00	832.48

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	9.00	1168.99
2	46.040459	-119.224690	1191.05	9.00	1200.05
3	46.042857	-119.224615	1214.84	9.00	1223.84
4	46.046186	-119.224550	1238.13	9.00	1247.13
5	46.048100	-119.224507	1248.38	9.00	1257.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	9.00	1298.13
2	46.057039	-119.224186	1313.71	9.00	1322.71
3	46.059696	-119.223950	1337.57	9.00	1346.57
4	46.062116	-119.223714	1348.33	9.00	1357.33
5	46.063009	-119.223660	1358.35	9.00	1367.35
6	46.064401	-119.223714	1378.78	9.00	1387.78
7	46.066173	-119.223832	1404.38	9.00	1413.39
8	46.067614	-119.223907	1425.76	9.00	1434.76
9	46.069192	-119.223724	1448.15	9.00	1457.15
10	46.070763	-119.223424	1468.64	9.00	1477.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	9.00	1586.60
2	46.082650	-119.222785	1589.94	9.00	1598.94
3	46.083878	-119.223032	1600.74	9.00	1609.74
4	46.085166	-119.223268	1615.92	9.00	1624.92
5	46.086163	-119.223451	1625.07	9.00	1634.07
6	46.087257	-119.223633	1633.34	9.00	1642.34
7	46.088760	-119.223697	1639.56	9.00	1648.56
8	46.089943	-119.223612	1639.85	9.00	1648.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 3-1	SA tracking	SA tracking	0	0	-
PV array 3-10	SA tracking	SA tracking	0	0	-
PV array 3-11	SA tracking	SA tracking	0	0	-
PV array 3-12	SA tracking	SA tracking	0	0	-
PV array 3-13	SA tracking	SA tracking	0	0	-
PV array 3-14	SA tracking	SA tracking	0	0	-
PV array 3-15	SA tracking	SA tracking	0	0	-
PV array 3-16	SA tracking	SA tracking	0	0	-
PV array 3-17	SA tracking	SA tracking	0	0	-
PV array 3-2	SA tracking	SA tracking	0	0	-
PV array 3-3	SA tracking	SA tracking	0	0	-
PV array 3-4	SA tracking	SA tracking	0	0	-
PV array 3-5	SA tracking	SA tracking	0	0	-
PV array 3-6	SA tracking	SA tracking	0	0	-
PV array 3-7	SA tracking	SA tracking	0	0	-
PV array 3-8	SA tracking	SA tracking	0	0	-
PV array 3-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 3-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 3-16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 3-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East2-1st floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:11 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

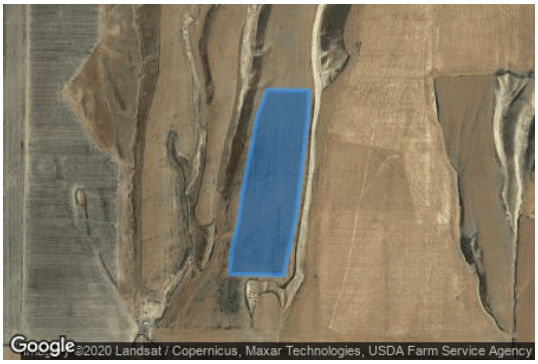
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46964.8449

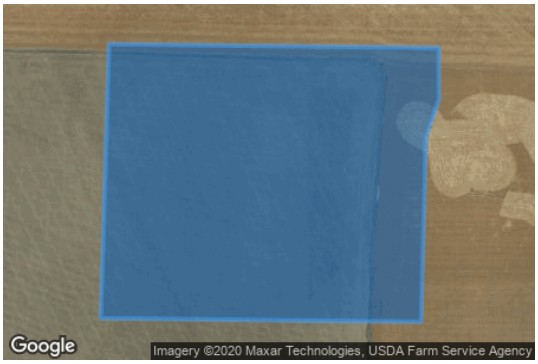
PV Array(s)

Name: PV array 4-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.074428	-119.185794	1604.10	7.00	1611.10
2	46.074413	-119.182725	1626.25	7.00	1633.25
3	46.072999	-119.182832	1592.62	7.00	1599.62
4	46.067922	-119.183712	1509.08	7.00	1516.08
5	46.065123	-119.184570	1478.31	7.00	1485.31
6	46.065183	-119.188519	1477.13	7.00	1484.13
7	46.066404	-119.188390	1476.95	7.00	1483.95
8	46.067892	-119.187875	1493.77	7.00	1500.77
9	46.069232	-119.187617	1514.73	7.00	1521.73
10	46.073073	-119.186523	1575.70	7.00	1582.70

Name: PV array 4-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

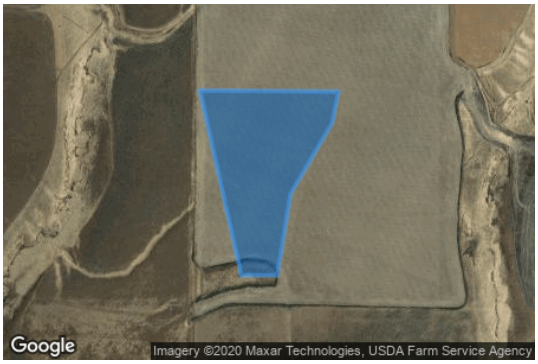


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.053662	-119.177753	1348.55	7.00	1355.55
2	46.050222	-119.177903	1300.14	7.00	1307.14
3	46.050178	-119.172088	1308.51	7.00	1315.51
4	46.052486	-119.172003	1327.98	7.00	1334.98
5	46.052962	-119.171767	1326.30	7.00	1333.30
6	46.053618	-119.171767	1334.02	7.00	1341.02

Name: PV array 4-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.050222	-119.177496	1301.38	7.00	1308.38
2	46.050133	-119.171080	1294.76	7.00	1301.76
3	46.048971	-119.170522	1285.48	7.00	1292.48
4	46.047959	-119.170586	1281.75	7.00	1288.75
5	46.045427	-119.172453	1270.46	7.00	1277.46
6	46.044310	-119.172475	1240.05	7.00	1247.05
7	46.044280	-119.182281	1251.59	7.00	1258.59
8	46.046097	-119.182238	1247.57	7.00	1254.57
9	46.049090	-119.177968	1294.24	7.00	1301.24
10	46.050222	-119.177903	1300.14	7.00	1307.14

Name: PV array 4-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.039660	-119.179496	1209.17	7.00	1216.17
2	46.039660	-119.180805	1218.17	7.00	1225.17
3	46.044307	-119.182307	1251.45	7.00	1258.45
4	46.044277	-119.177265	1259.38	7.00	1266.39
5	46.043488	-119.177501	1247.35	7.00	1254.35
6	46.041715	-119.179003	1230.31	7.00	1237.31

Name: PV array 4-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.044292	-119.177329	1259.37	7.00	1266.37
2	46.044322	-119.173102	1263.57	7.00	1270.57
3	46.042922	-119.173081	1238.95	7.00	1245.95
4	46.042385	-119.173209	1232.57	7.00	1239.57
5	46.041134	-119.173231	1214.53	7.00	1221.53
6	46.040434	-119.173038	1207.31	7.00	1214.31
7	46.039660	-119.173016	1202.76	7.00	1209.76
8	46.039660	-119.178445	1211.40	7.00	1218.41
9	46.040851	-119.178252	1224.53	7.00	1231.53
10	46.041745	-119.177608	1236.55	7.00	1243.55
11	46.043175	-119.176428	1250.31	7.00	1257.31
12	46.044322	-119.176385	1260.27	7.00	1267.27

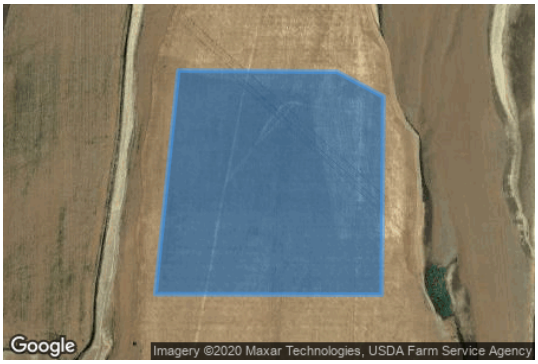
Name: PV array 4-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065183	-119.188583	1476.44	7.00	1483.44
2	46.065213	-119.189785	1447.65	7.00	1454.65
3	46.064557	-119.189870	1453.39	7.00	1460.40
4	46.064557	-119.190600	1432.32	7.00	1439.32
5	46.063664	-119.190729	1437.94	7.00	1444.94
6	46.063649	-119.191415	1419.44	7.00	1426.44
7	46.061803	-119.191523	1424.54	7.00	1431.54
8	46.061773	-119.187467	1443.18	7.00	1450.18
9	46.065168	-119.187381	1486.77	7.00	1493.77

Name: PV array 4-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060205	-119.192064	1407.22	7.00	1414.22
2	46.060175	-119.185991	1403.68	7.00	1410.68
3	46.057570	-119.186120	1358.40	7.00	1365.40
4	46.056393	-119.186549	1340.84	7.00	1347.84
5	46.054160	-119.186613	1310.97	7.00	1317.97
6	46.054219	-119.190905	1315.77	7.00	1322.77
7	46.055157	-119.191806	1318.49	7.00	1325.49
8	46.057540	-119.191720	1361.37	7.00	1368.37
9	46.057555	-119.193094	1357.36	7.00	1364.36
10	46.058463	-119.193115	1371.33	7.00	1378.33
11	46.059297	-119.192772	1385.11	7.00	1392.11

Name: PV array 4-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

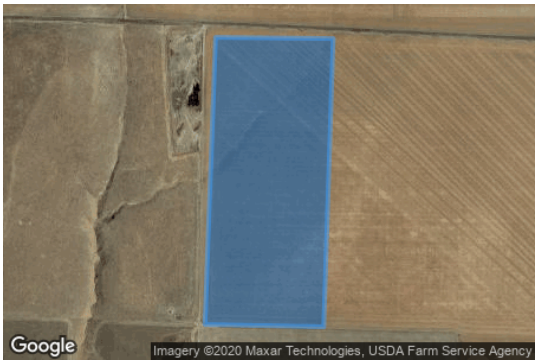


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071906	-119.180682	1573.72	7.00	1580.72
2	46.071876	-119.174931	1613.21	7.00	1620.21
3	46.071251	-119.173236	1585.72	7.00	1592.72
4	46.066278	-119.173300	1497.98	7.00	1504.98
5	46.066293	-119.181519	1494.40	7.00	1501.40

Name: PV array 4-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

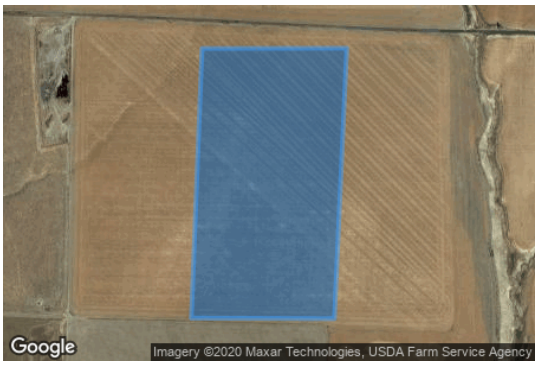
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.066293	-119.181562	1493.38	7.00	1500.38
2	46.063271	-119.181626	1468.34	7.00	1475.34
3	46.063286	-119.182806	1447.23	7.00	1454.23
4	46.062095	-119.182806	1440.75	7.00	1447.75
5	46.061514	-119.181776	1439.80	7.00	1446.80
6	46.061425	-119.171176	1442.27	7.00	1449.27
7	46.062854	-119.171198	1443.64	7.00	1450.64
8	46.062884	-119.172528	1470.54	7.00	1477.54
9	46.066278	-119.172485	1486.35	7.00	1493.35

Name: PV array 4-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



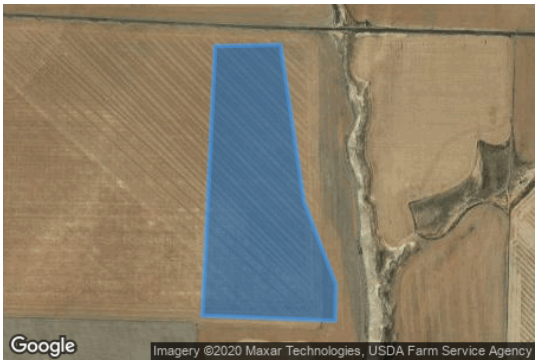
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060885	-119.181647	1424.58	7.00	1431.58
2	46.060856	-119.177377	1429.63	7.00	1436.63
3	46.053619	-119.177721	1348.88	7.00	1355.88
4	46.053678	-119.182034	1364.82	7.00	1371.82

Name: PV array 4-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060394	-119.177377	1427.17	7.00	1434.17
2	46.060401	-119.172120	1447.89	7.00	1454.89
3	46.053612	-119.172571	1344.82	7.00	1351.82
4	46.053627	-119.177764	1348.27	7.00	1355.27

Name: PV array 4-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060403	-119.172142	1448.13	7.00	1455.13
2	46.060433	-119.169760	1415.08	7.00	1422.08
3	46.056487	-119.168902	1384.97	7.00	1391.97
4	46.054418	-119.167743	1352.42	7.00	1359.42
5	46.053502	-119.167775	1340.94	7.00	1347.94
6	46.053628	-119.172603	1345.18	7.00	1352.18

Name: PV array 4-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.053677	-119.182088	1364.58	7.00	1371.58
2	46.047601	-119.182195	1269.38	7.00	1276.38
3	46.047601	-119.181337	1270.62	7.00	1277.62
4	46.048808	-119.180092	1283.59	7.00	1290.59
5	46.050222	-119.177882	1300.11	7.00	1307.11
6	46.053618	-119.177689	1349.33	7.00	1356.33

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	6.00
OP 2	2	46.125919	-119.219932	1320.29	6.00
OP 3	3	46.077101	-119.145764	1804.81	6.00
OP 4	4	46.065913	-119.078615	1520.73	6.00
OP 5	5	46.017217	-119.129341	1560.78	6.00
OP 6	6	46.100638	-119.351684	1835.32	6.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	5.00	1442.68
2	46.062165	-119.245439	1451.19	5.00	1456.19
3	46.062105	-119.242972	1440.64	5.00	1445.64
4	46.062143	-119.239603	1430.92	5.00	1435.92
5	46.062113	-119.236824	1424.17	5.00	1429.17
6	46.062128	-119.234152	1412.82	5.00	1417.82
7	46.062105	-119.231588	1420.12	5.00	1425.12
8	46.062098	-119.228252	1423.29	5.00	1428.29
9	46.062098	-119.226556	1405.15	5.00	1410.15
10	46.062388	-119.224142	1375.78	5.00	1380.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	5.00	1432.46
2	46.061785	-119.211922	1443.52	5.00	1448.52
3	46.061696	-119.208124	1462.60	5.00	1467.60
4	46.061622	-119.205484	1447.52	5.00	1452.52
5	46.061547	-119.202823	1447.47	5.00	1452.47
6	46.061510	-119.199894	1440.39	5.00	1445.39
7	46.061480	-119.197910	1421.95	5.00	1426.95
8	46.061383	-119.197062	1392.62	5.00	1397.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	5.00	1438.77
2	46.061267	-119.183567	1418.60	5.00	1423.60
3	46.061163	-119.178975	1433.57	5.00	1438.57
4	46.061088	-119.176786	1435.14	5.00	1440.14
5	46.060939	-119.173460	1462.67	5.00	1467.67
6	46.060805	-119.167988	1367.84	5.00	1372.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995519	-119.278077	796.24	5.00	801.24
2	45.996115	-119.275952	803.46	5.00	808.46
3	45.996950	-119.273013	808.72	5.00	813.72
4	45.997457	-119.271038	813.88	5.00	818.88
5	45.997964	-119.268356	815.97	5.00	820.97
6	45.998321	-119.265288	814.61	5.00	819.61
7	45.998634	-119.263206	823.31	5.00	828.31
8	45.998947	-119.261683	823.78	5.00	828.78

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	5.00	1164.99
2	46.040459	-119.224690	1191.05	5.00	1196.05
3	46.042857	-119.224615	1214.84	5.00	1219.84
4	46.046186	-119.224550	1238.13	5.00	1243.13
5	46.048100	-119.224507	1248.38	5.00	1253.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	5.00	1294.13
2	46.057039	-119.224186	1313.71	5.00	1318.71
3	46.059696	-119.223950	1337.57	5.00	1342.57
4	46.062116	-119.223714	1348.33	5.00	1353.33
5	46.063009	-119.223660	1358.35	5.00	1363.35
6	46.064401	-119.223714	1378.78	5.00	1383.78
7	46.066173	-119.223832	1404.38	5.00	1409.38
8	46.067614	-119.223907	1425.76	5.00	1430.76
9	46.069192	-119.223724	1448.15	5.00	1453.15
10	46.070763	-119.223424	1468.64	5.00	1473.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	5.00	1582.60
2	46.082650	-119.222785	1589.94	5.00	1594.94
3	46.083878	-119.223032	1600.74	5.00	1605.74
4	46.085166	-119.223268	1615.92	5.00	1620.92
5	46.086163	-119.223451	1625.07	5.00	1630.07
6	46.087257	-119.223633	1633.34	5.00	1638.34
7	46.088760	-119.223697	1639.56	5.00	1644.56
8	46.089943	-119.223612	1639.85	5.00	1644.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 4-1	SA tracking	SA tracking	0	0	-
PV array 4-10	SA tracking	SA tracking	0	0	-
PV array 4-11	SA tracking	SA tracking	0	0	-
PV array 4-12	SA tracking	SA tracking	0	0	-
PV array 4-13	SA tracking	SA tracking	0	0	-
PV array 4-2	SA tracking	SA tracking	0	0	-
PV array 4-3	SA tracking	SA tracking	0	0	-
PV array 4-4	SA tracking	SA tracking	0	0	-
PV array 4-5	SA tracking	SA tracking	0	0	-
PV array 4-6	SA tracking	SA tracking	0	0	-
PV array 4-7	SA tracking	SA tracking	0	0	-
PV array 4-8	SA tracking	SA tracking	0	0	-
PV array 4-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 4-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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FORGESOLAR GLARE ANALYSIS

Project: **Horse Heaven**
Site configuration: **Horse Heaven East2-2nd floor**
Analysis conducted by Josh Burdett (joshua.burdett@tetratech.com) at 04:12 on 15 Dec, 2020.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

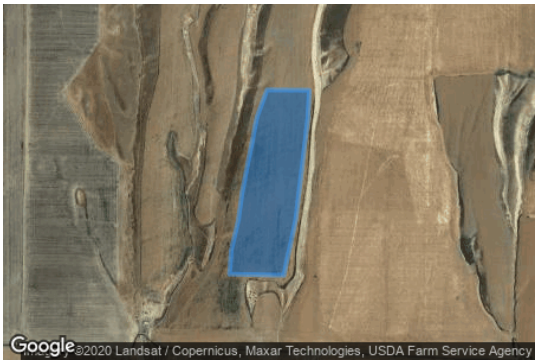
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 46965.8449

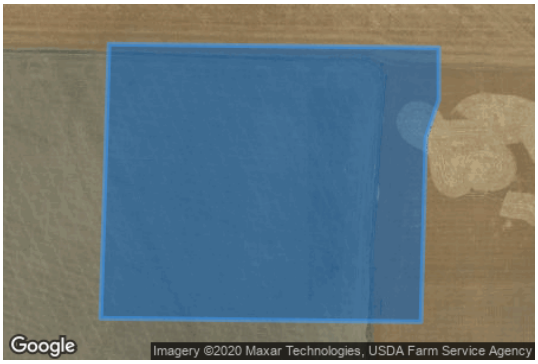
PV Array(s)

Name: PV array 4-1
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.074428	-119.185794	1604.10	7.00	1611.10
2	46.074413	-119.182725	1626.25	7.00	1633.25
3	46.072999	-119.182832	1592.62	7.00	1599.62
4	46.067922	-119.183712	1509.08	7.00	1516.08
5	46.065123	-119.184570	1478.31	7.00	1485.31
6	46.065183	-119.188519	1477.13	7.00	1484.13
7	46.066404	-119.188390	1476.95	7.00	1483.95
8	46.067892	-119.187875	1493.77	7.00	1500.77
9	46.069232	-119.187617	1514.73	7.00	1521.73
10	46.073073	-119.186523	1575.70	7.00	1582.70

Name: PV array 4-10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

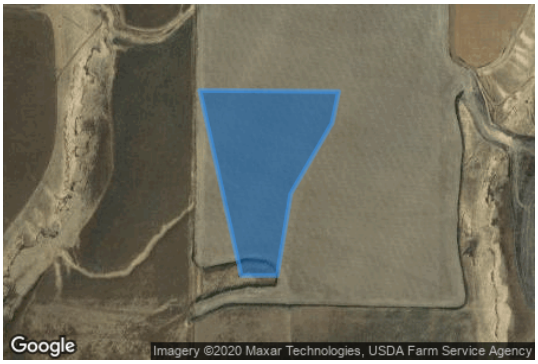


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.053662	-119.177753	1348.55	7.00	1355.55
2	46.050222	-119.177903	1300.14	7.00	1307.14
3	46.050178	-119.172088	1308.51	7.00	1315.51
4	46.052486	-119.172003	1327.98	7.00	1334.98
5	46.052962	-119.171767	1326.30	7.00	1333.30
6	46.053618	-119.171767	1334.02	7.00	1341.02

Name: PV array 4-11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.050222	-119.177496	1301.38	7.00	1308.38
2	46.050133	-119.171080	1294.76	7.00	1301.76
3	46.048971	-119.170522	1285.48	7.00	1292.48
4	46.047959	-119.170586	1281.75	7.00	1288.75
5	46.045427	-119.172453	1270.46	7.00	1277.46
6	46.044310	-119.172475	1240.05	7.00	1247.05
7	46.044280	-119.182281	1251.59	7.00	1258.59
8	46.046097	-119.182238	1247.57	7.00	1254.57
9	46.049090	-119.177968	1294.24	7.00	1301.24
10	46.050222	-119.177903	1300.14	7.00	1307.14

Name: PV array 4-12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.039660	-119.179496	1209.17	7.00	1216.17
2	46.039660	-119.180805	1218.17	7.00	1225.17
3	46.044307	-119.182307	1251.45	7.00	1258.45
4	46.044277	-119.177265	1259.38	7.00	1266.39
5	46.043488	-119.177501	1247.35	7.00	1254.35
6	46.041715	-119.179003	1230.31	7.00	1237.31

Name: PV array 4-13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.9°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.044292	-119.177329	1259.37	7.00	1266.37
2	46.044322	-119.173102	1263.57	7.00	1270.57
3	46.042922	-119.173081	1238.95	7.00	1245.95
4	46.042385	-119.173209	1232.57	7.00	1239.57
5	46.041134	-119.173231	1214.53	7.00	1221.53
6	46.040434	-119.173038	1207.31	7.00	1214.31
7	46.039660	-119.173016	1202.76	7.00	1209.76
8	46.039660	-119.178445	1211.40	7.00	1218.41
9	46.040851	-119.178252	1224.53	7.00	1231.53
10	46.041745	-119.177608	1236.55	7.00	1243.55
11	46.043175	-119.176428	1250.31	7.00	1257.31
12	46.044322	-119.176385	1260.27	7.00	1267.27

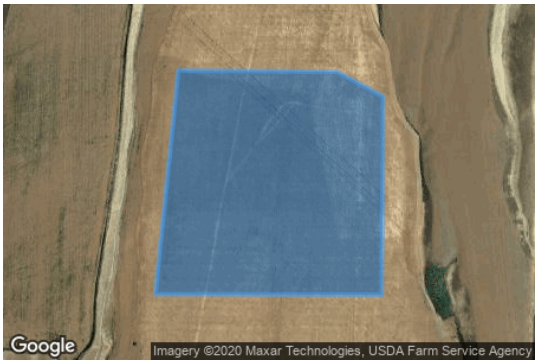
Name: PV array 4-2
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 1.09°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.065183	-119.188583	1476.44	7.00	1483.44
2	46.065213	-119.189785	1447.65	7.00	1454.65
3	46.064557	-119.189870	1453.39	7.00	1460.40
4	46.064557	-119.190600	1432.32	7.00	1439.32
5	46.063664	-119.190729	1437.94	7.00	1444.94
6	46.063649	-119.191415	1419.44	7.00	1426.44
7	46.061803	-119.191523	1424.54	7.00	1431.54
8	46.061773	-119.187467	1443.18	7.00	1450.18
9	46.065168	-119.187381	1486.77	7.00	1493.77

Name: PV array 4-3
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.3°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060205	-119.192064	1407.22	7.00	1414.22
2	46.060175	-119.185991	1403.68	7.00	1410.68
3	46.057570	-119.186120	1358.40	7.00	1365.40
4	46.056393	-119.186549	1340.84	7.00	1347.84
5	46.054160	-119.186613	1310.97	7.00	1317.97
6	46.054219	-119.190905	1315.77	7.00	1322.77
7	46.055157	-119.191806	1318.49	7.00	1325.49
8	46.057540	-119.191720	1361.37	7.00	1368.37
9	46.057555	-119.193094	1357.36	7.00	1364.36
10	46.058463	-119.193115	1371.33	7.00	1378.33
11	46.059297	-119.192772	1385.11	7.00	1392.11

Name: PV array 4-4
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

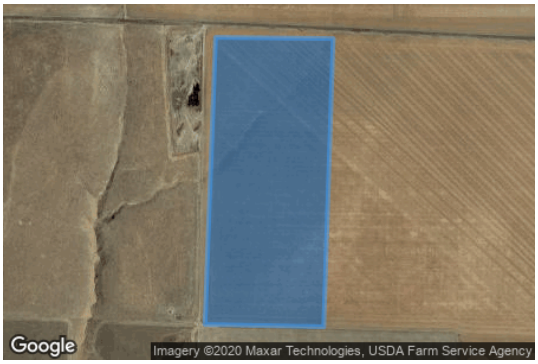


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.071906	-119.180682	1573.72	7.00	1580.72
2	46.071876	-119.174931	1613.21	7.00	1620.21
3	46.071251	-119.173236	1585.72	7.00	1592.72
4	46.066278	-119.173300	1497.98	7.00	1504.98
5	46.066293	-119.181519	1494.40	7.00	1501.40

Name: PV array 4-5
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

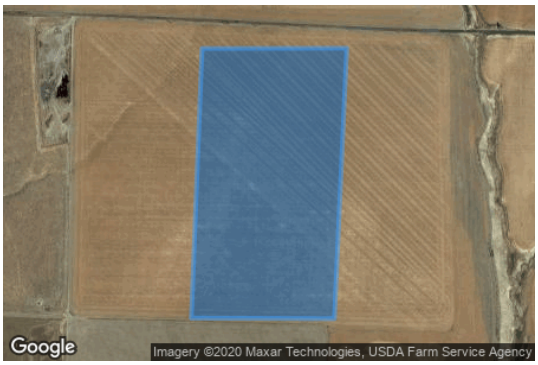
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.066293	-119.181562	1493.38	7.00	1500.38
2	46.063271	-119.181626	1468.34	7.00	1475.34
3	46.063286	-119.182806	1447.23	7.00	1454.23
4	46.062095	-119.182806	1440.75	7.00	1447.75
5	46.061514	-119.181776	1439.80	7.00	1446.80
6	46.061425	-119.171176	1442.27	7.00	1449.27
7	46.062854	-119.171198	1443.64	7.00	1450.64
8	46.062884	-119.172528	1470.54	7.00	1477.54
9	46.066278	-119.172485	1486.35	7.00	1493.35

Name: PV array 4-6
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



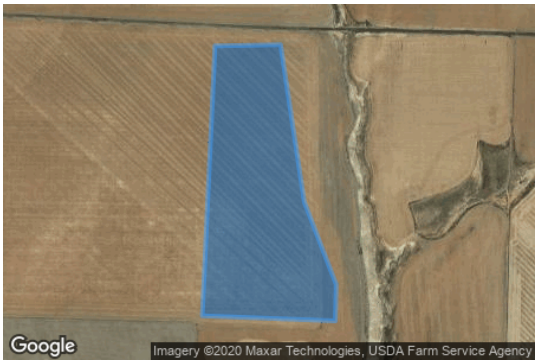
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060885	-119.181647	1424.58	7.00	1431.58
2	46.060856	-119.177377	1429.63	7.00	1436.63
3	46.053619	-119.177721	1348.88	7.00	1355.88
4	46.053678	-119.182034	1364.82	7.00	1371.82

Name: PV array 4-7
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060394	-119.177377	1427.17	7.00	1434.17
2	46.060401	-119.172120	1447.89	7.00	1454.89
3	46.053612	-119.172571	1344.82	7.00	1351.82
4	46.053627	-119.177764	1348.27	7.00	1355.27

Name: PV array 4-8
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.35°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.060403	-119.172142	1448.13	7.00	1455.13
2	46.060433	-119.169760	1415.08	7.00	1422.08
3	46.056487	-119.168902	1384.97	7.00	1391.97
4	46.054418	-119.167743	1352.42	7.00	1359.42
5	46.053502	-119.167775	1340.94	7.00	1347.94
6	46.053628	-119.172603	1345.18	7.00	1352.18

Name: PV array 4-9
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.4°
Tracking axis panel offset: 0.0°
Max tracking angle: 50.0°
Resting angle: 10.0°
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.053677	-119.182088	1364.58	7.00	1371.58
2	46.047601	-119.182195	1269.38	7.00	1276.38
3	46.047601	-119.181337	1270.62	7.00	1277.62
4	46.048808	-119.180092	1283.59	7.00	1290.59
5	46.050222	-119.177882	1300.11	7.00	1307.11
6	46.053618	-119.177689	1349.33	7.00	1356.33

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	46.072705	-119.218667	1497.61	16.00
OP 2	2	46.125919	-119.219932	1320.29	16.00
OP 3	3	46.077101	-119.145764	1804.81	16.00
OP 4	4	46.065913	-119.078615	1520.73	16.00
OP 5	5	46.017217	-119.129341	1560.78	16.00
OP 6	6	46.100638	-119.351684	1835.32	16.00

Route Receptor(s)

Name: Beck Rd-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.062247	-119.247896	1437.68	9.00	1446.68
2	46.062165	-119.245439	1451.19	9.00	1460.19
3	46.062105	-119.242972	1440.64	9.00	1449.64
4	46.062143	-119.239603	1430.92	9.00	1439.92
5	46.062113	-119.236824	1424.17	9.00	1433.17
6	46.062128	-119.234152	1412.82	9.00	1421.82
7	46.062105	-119.231588	1420.12	9.00	1429.12
8	46.062098	-119.228252	1423.29	9.00	1432.29
9	46.062098	-119.226556	1405.15	9.00	1414.15
10	46.062388	-119.224142	1375.78	9.00	1384.78

Name: Beck Rd-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061852	-119.214432	1427.46	9.00	1436.46
2	46.061785	-119.211922	1443.52	9.00	1452.52
3	46.061696	-119.208124	1462.60	9.00	1471.60
4	46.061622	-119.205484	1447.52	9.00	1456.52
5	46.061547	-119.202823	1447.47	9.00	1456.47
6	46.061510	-119.199894	1440.39	9.00	1449.40
7	46.061480	-119.197910	1421.95	9.00	1430.95
8	46.061383	-119.197062	1392.62	9.00	1401.62

Name: Beck Rd-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.061341	-119.187536	1433.77	9.00	1442.77
2	46.061267	-119.183567	1418.60	9.00	1427.60
3	46.061163	-119.178975	1433.57	9.00	1442.57
4	46.061088	-119.176786	1435.14	9.00	1444.14
5	46.060939	-119.173460	1462.67	9.00	1471.67
6	46.060805	-119.167988	1367.84	9.00	1376.84

Name: US HWY 395-1
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	45.995519	-119.278077	796.24	9.00	805.24
2	45.996115	-119.275952	803.46	9.00	812.46
3	45.996950	-119.273013	808.72	9.00	817.72
4	45.997457	-119.271038	813.88	9.00	822.88
5	45.997964	-119.268356	815.97	9.00	824.98
6	45.998321	-119.265288	814.61	9.00	823.61
7	45.998634	-119.263206	823.31	9.00	832.31
8	45.998947	-119.261683	823.78	9.00	832.78

Name: US HWY 395-2
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.037771	-119.224776	1159.99	9.00	1168.99
2	46.040459	-119.224690	1191.05	9.00	1200.05
3	46.042857	-119.224615	1214.84	9.00	1223.84
4	46.046186	-119.224550	1238.13	9.00	1247.13
5	46.048100	-119.224507	1248.38	9.00	1257.38

Name: US HWY 395-3
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.054961	-119.224314	1289.13	9.00	1298.13
2	46.057039	-119.224186	1313.71	9.00	1322.71
3	46.059696	-119.223950	1337.57	9.00	1346.57
4	46.062116	-119.223714	1348.33	9.00	1357.33
5	46.063009	-119.223660	1358.35	9.00	1367.35
6	46.064401	-119.223714	1378.78	9.00	1387.78
7	46.066173	-119.223832	1404.38	9.00	1413.39
8	46.067614	-119.223907	1425.76	9.00	1434.76
9	46.069192	-119.223724	1448.15	9.00	1457.15
10	46.070763	-119.223424	1468.64	9.00	1477.64

Name: US HWY 395-4
Path type: Two-way
Observer view angle: 50.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	46.081318	-119.222539	1577.60	5.00	1582.60
2	46.082650	-119.222785	1589.94	5.00	1594.94
3	46.083878	-119.223032	1600.74	5.00	1605.74
4	46.085166	-119.223268	1615.92	5.00	1620.92
5	46.086163	-119.223451	1625.07	5.00	1630.07
6	46.087257	-119.223633	1633.34	5.00	1638.34
7	46.088760	-119.223697	1639.56	5.00	1644.56
8	46.089943	-119.223612	1639.85	5.00	1644.85

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV array 4-1	SA tracking	SA tracking	0	0	-
PV array 4-10	SA tracking	SA tracking	0	0	-
PV array 4-11	SA tracking	SA tracking	0	0	-
PV array 4-12	SA tracking	SA tracking	0	0	-
PV array 4-13	SA tracking	SA tracking	0	0	-
PV array 4-2	SA tracking	SA tracking	0	0	-
PV array 4-3	SA tracking	SA tracking	0	0	-
PV array 4-4	SA tracking	SA tracking	0	0	-
PV array 4-5	SA tracking	SA tracking	0	0	-
PV array 4-6	SA tracking	SA tracking	0	0	-
PV array 4-7	SA tracking	SA tracking	0	0	-
PV array 4-8	SA tracking	SA tracking	0	0	-
PV array 4-9	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Results for: PV array 4-1

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-2

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-3

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-4

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare

0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-5

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-6

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-7

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare

0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Results for: PV array 4-8

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare

0 minutes of green glare

Results for: PV array 4-9

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
Beck Rd-1	0	0
Beck Rd-2	0	0
Beck Rd-3	0	0
US HWY 395-1	0	0
US HWY 395-2	0	0
US HWY 395-3	0	0
US HWY 395-4	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-1

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-2

0 minutes of yellow glare
0 minutes of green glare

Route: Beck Rd-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-1

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-2

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-3

0 minutes of yellow glare
0 minutes of green glare

Route: US HWY 395-4

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.
Several calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

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APPENDIX 4.11-1

Inputs for Noise Modeling Assessment

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Inputs for Noise Modeling Assessment

Noise sources are input in terms of frequency distributed sound power levels, which are outlined in the source tables below. This provides not only an overall noise source, but also how that overall noise is distributed across octave band frequencies (low to high). Coordinates for sources, receptors, and any other object can be specified by the user. All noise sources are assumed to be point sources.

Sound propagation is calculated by accounting for distance attenuation via hemispherical spreading and three other user-identified noise attenuation options: atmospheric attenuation, path-specific attenuation, and barrier attenuation. Atmospheric attenuation is calculated using the data specified in the International Standards Organization Attenuation of Sound During Propagation Outdoors, Part 1: Calculations of the Absorption of Sound by the Atmosphere (ISO 19931). Path-specific attenuation can be specified to account for the effects of ground, vegetation, foliage, and wind shadow. Directional source characteristics and reflection can be simulated using path-specific attenuation. Attenuation due to barriers can be specified by giving the coordinates of the barrier. Barrier attenuation is calculated by assuming a defined barrier perpendicular to the source-receptor path. Total and A-weighted sound pressure levels (SPLs) are calculated.

Table 4.11-1A lists the configuration of the calculation parameters used to complete noise modeling for the Project.

Table 4.11-1A: Noise Model Configuration Parameters

Parameter	Model Setting	Description/Notes
Standards	ISO 9613 only	All sources and attenuators are treated as required by the cited standard.
Directivity	k-factor = 2 dBA (for Turbine blade noise sources)	Assumed that turbine blade directivity and sound-generating efficiencies are inherently incorporated in the noise source data used in developing the acoustic model. The specification for the turbines includes an expected warranty confidence interval, or k-factor, which was added to the nominal sound power level in the acoustic model.
Ground Absorption	0.5	Mixed (semi-reflective) soft and hard ground, conservative assumption given the area is mostly composed of fields.
Temperature/humidity	10°C (50° F) / 70% relative humidity	Assumed weather conditions.
Wind Conditions	Default ISO 9613-2 – moderate inversion condition	The propagation conditions in the ISO standard are valid for wind speeds between 4 and 18 km/hr; all points are considered downwind (omnidirectional).
Terrain	Existing terrain considered	Existing ridgeline and changes in elevation in the impact area will affect sound propagation.
Operations	Continuous	All equipment operating continuously during the daytime and at night. Conservative assumption considering operations will be dependent on weather conditions.
Noise Mitigation	None	The model does not include natural buffers, existing or future foliage, or existing or future buildings or structures.

Source: Horse Heaven Wind Farm, LLC. 2022. Horse Heaven Wind Farm Washington Energy Facility Site Evaluation Council Updated Application for Site Certification EFSEC Docket Number: EF-210011. February 2021, Revised December 2022.
°C = degrees Celsius; °F = degrees Fahrenheit; dBA = A-weighted decibels; ISO = International Standards Organization; km/hr = kilometers per hour

[1] ISO (International Organization for Standardization). 1993. Standard ISO 9613-2 Acoustics – Attenuation of Sound during Propagation Outdoors. Part 2 General Method of Calculation. Geneva, Switzerland.

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APPENDIX 4.16-1

Technical Review of Horse Heaven Wind Farm, LLC's Economic Impact Analysis Methodology

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Economic IMPLAN Model

Tetra Tech, Inc. on behalf of Horse Heaven Windfarm, LLC (the Applicant), prepared an IMPLAN analysis of the Horse Heaven Wind Farm (Project) (Horse Heaven Wind Farm, LLC 2022[1]). IMPLAN is a regional input-output model widely used to assess the economic impacts of energy and many other types of projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy.

Using national industry and state-level economic data derived from the U.S. Bureau of Economic Analysis, U.S. Census, and other government sources, IMPLAN models how money spent in one sector of the economy is spent and re-spent in other sectors. By tracing these linkages, the model approximates the flows of initial project spending through the local economy based on the supply lines connecting the various economic sectors. These linkages vary by sector, as well as through regional differences in spending and employment patterns. The amount spent locally decreases with each successive transaction away from the initial expenditure due to the effects of savings, taxes, or other activities that happen outside the local economy, known as leakages.

The economic relationships modeled by IMPLAN allow the user to estimate the overall change in the economy that would result from construction and operation of a proposed project. The dollars spent on project construction and operation within a selected analysis area are analyzed to determine the total economic impact within that area. The direct investments in project construction and operation trigger successive rounds of spending that result in an overall increase in employment, labor income, and economic output in the local economy. Construction-related impacts are assessed as one-time impacts; operations and maintenance–related impacts are modeled as annual impacts (Horse Heaven Wind Farm, LLC 2022).

Workforce Requirements and Economic Impacts

For the Project, Project Management and Engineers would account for 3 to 4 percent of total employment for conceptualized Phases 1, 2a, and 2b, and Field Technical Staff would account for 9 to 11 percent, viewed in terms of total months of employment. The remaining employment would be made up of Skilled Labor and Equipment Operators and Unskilled Labor, with the relative distribution between these categories varying by task (Horse Heaven Wind Farm, LLC 2022). Workers in the Skilled Labor and Equipment Operators category, for example, would account for the majority of employment during wind turbine assembly, while the majority of the workforce installing turbine foundations would fall under the Unskilled Labor category.

Table 4.16-1A provides an estimate of the workforce necessary to construct Phases 1, 2a, and 2b. The Applicant anticipates that on-site jobs would be filled mostly by local workers. Classes of on-site jobs include those associated with site work, foundations, electrical work, and other construction-related labor needs. The Applicant acknowledges in the Application for Site Certification that workers from outside the region may be required to fill certain on-site positions. However, the Applicant did not include the potential for non-local workers in their workforce estimates but did evaluate the impact of per diem spending by non-local workers on the region's economy. These estimates are one-time impacts for the 11-month construction period developed using the IMPLAN modeling software and 2019 IMPLAN data for Benton and Franklin Counties.

[1] Horse Heaven Wind Farm, LLC. 2022. Horse Heaven Wind Farm Washington Energy Facility Site Evaluation Council Updated Application for Site Certification EFSEC Docket Number: EF-210011. February 2021, Revised December 2022.

The employment estimates presented in the ASC represent the average and peak numbers of people expected to be employed on site at one time and are not expressed in full-time equivalents. The workforce estimates provided by the Applicant assume that the Project would be built under a community workforce or Project labor agreement that would include the use of apprentices for 15 percent of the labor hours. The economic impact analysis, therefore, increased initial workforce estimates by 15 percent to account for apprentices.

Table 4.16-1A: Average Monthly Workforce Estimates by Technical Professional and Level

Task	Phase	Project Management and Engineers	Field Technical Staff	Skilled Labor and Equipment Operators	Unskilled Labor	Apprentice
Final Engineering and Design	1	5	0	0	0	0
Pre-Construction Survey and Compliance Requirements	1	1	4	0	0	0
Road Construction	1	2	1	15	12	5
Wind Turbine Foundations	1	2	5	30	88	19
Wind Turbine Assembly	1	2	10	118	20	23
Wind Plant Commissioning	1	1	19	0	0	3
Solar Array Construction	1	3	4	14	40	70
Electrical System Installation	1	2	5	19	56	12
Battery Energy Storage System	1	1	2	6	18	4
Solar Plant Commissioning	1	1	1	5	15	3
Electrical System and Substation	1	2	10	28	10	8
O&M Facilities	1	2	5	10	18	5
Final Engineering and Design	2a	5	0	0	0	0
Pre-Construction Survey and Compliance Requirements	2a	1	4	0	0	0
Road Construction	2a	2	1	13	10	4
Wind Turbine Foundations	2a	2	3	20	63	13
Wind Turbine Assembly	2a	2	7	81	15	16
Wind Plant Commissioning	2a	1	15	0	0	2

Table 4.16-1A: Average Monthly Workforce Estimates by Technical Professional and Level

Task	Phase	Project Management and Engineers	Field Technical Staff	Skilled Labor and Equipment Operators	Unskilled Labor	Apprentice
Solar Array Construction	2a	3	3	12	33	8
Electrical System Installation	2a	2	4	16	47	10
Battery Energy Storage System	2a	1	2	6	18	4
Solar Plant Commissioning	2a	1	1	4	13	3
Electrical System and Substation	2a	3	15	38	15	11
O&M Facilities	2a	2	5	10	18	5
Transmission Line Construction	2a	1	2	12	0	2
Final Engineering and Design	2b	5	0	0	0	0
Pre-Construction Survey and Compliance Requirements	2b	1	4	0	0	0
Road Construction	2b	4	1	25	20	8
Wind Turbine Foundations	2b	3	7	40	125	26
Electrical System and Substation	2b	3	15	38	15	11
Wind Turbine Assembly	2b	3	14	162	31	32
O&M Facilities	2b	2	5	10	18	5
Transmission Line Construction	2b	2	4	23	0	4
Plant Commissioning	2b	1	29	0	0	5

Sources:
Horse Heaven Wind Farm, LLC. 2022. Horse Heaven Wind Farm Washington Energy Facility Site Evaluation Council Updated Application for Site Certification EFSEC Docket Number: EF-210011. February 2021, Revised December 2022.
Tetra Tech, Inc. 2021. Economic Impact Assessment of the Horse Heaven Wind Farm. Appendix J.
O&M = operations and maintenance

The Application for Site Certification states that construction workforces for Phases 1, 2a, and 2b would vary over the course of the construction schedule. The following summarizes the low, mean, and high workforce estimates for each conceptual construction phase:

- Construction for Phase 1 is estimated to take place over an 11-month period. On-site activities would employ an average of 300 workers over the 11-month construction period. Viewed by month, on-site employment would range from a low of 26 workers to a high of 467 workers.
- Construction for Phase 2a is assumed to take place over an 11-month construction period. An estimated average of 267 workers per month would be employed over the 11-month construction schedule, with estimated monthly employment ranging from a low of 22 to a high of 430 jobs.
- The construction period for Phase 2b is assumed to be 10 months. An average of 271 workers per month would be employed over the 10-month construction period, with estimated monthly employment ranging from a low of 35 jobs to a high of 412 jobs (Horse Heaven Wind Farm, LLC 2022).

The economic impact of the Project's construction phase for Phases 1, 2a, and 2b are summarized for Benton and Franklin Counties in **Table 4.16-1B**. These estimates are one-time impacts for the 11-month construction period developed using the IMPLAN modeling software and 2019 IMPLAN data for Benton and Franklin Counties.

Table 4.16-1B: One-Time Construction Impacts

Construction Phase	Impact	FTE Jobs	Labor Income $ (million)	Economic Output $ (million)
Phase 1	Direct	171	19.4	19.4
Phase 1	Indirect	168	11.1	30.7
Phase 1	Induced	118	6.5	20.5
Phase 2a	Direct	152	17.2	17.2
Phase 2a	Indirect	199	13.8	35
Phase 2a	Induced	120	6.6	20.8
Phase 2b	Direct	136	15.7	15.7
Phase 2b	Indirect	269	18.8	46.7
Phase 2b	Induced	135	7.4	23.4

Sources:
Horse Heaven Wind Farm, LLC. 2022. Horse Heaven Wind Farm Washington Energy Facility Site Evaluation Council Updated Application for Site Certification EFSEC Docket Number: EF-210011. February 2021, Revised December 2022.
Tetra Tech, Inc. 2021. Economic Impact Assessment of the Horse Heaven Wind Farm. Appendix J.
FTE = full-time equivalent

The economic impact of the Project's operations phase for Phases 1, 2a, and 2b for Benton and Franklin Counties is summarized in **Table 4.16-1C**. These estimates are annual average impacts based on estimated operations and maintenance expenditures for a 35-year period of operation.

Table 4.16-1C: Annual Operational Impacts on Employment and Income

Construction Phase	Impact	FTE Jobs	Labor Income $ (million)	Economic Output $ (million)
Phase 1	Direct	11	1.0	1.0
Phase 1	Indirect	12	0.9	3.0
Phase 1	Induced	9	0.5	1.5
Phase 2a[(a)]	Direct	9	0.8	0.8
Phase 2a[(a)]	Indirect	9	0.7	2.2
Phase 2a[(a)]	Induced	7	0.4	1.1
Phase 2b[(a)]	Direct	9	0.8	0.8
Phase 2b[(a)]	Indirect	10	0.9	3.2
Phase 2b[(a)]	Induced	7	0.4	1.3

Sources:
Horse Heaven Wind Farm, LLC. 2022. Horse Heaven Wind Farm Washington Energy Facility Site Evaluation Council Updated Application for Site Certification EFSEC Docket Number: EF-210011. February 2021, Revised December 2022.
Tetra Tech, Inc. 2021. Economic Impact Assessment of the Horse Heaven Wind Farm. Appendix J.

[(a)] = Operational workforce estimates are based on if only Phase 2a or 2b were constructed. If both Phase 2a and 2b are constructed the estimated operational employment impact (direct, indirect, and induced) would range from 24 to 26 FTEs.
FTE = full-time equivalent

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APPENDIX 10-1

Draft EIS Comment and Response Tables

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Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1071233	I would like to express my concerns for this project as the northwest has ample green energy sources already, hydro electric and nuclear to name two. We don't need subsidized wind farms that are unreliable and never pay for themselves over the long haul. Plus the windmills are monumental eyesores. Thank you	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Under Section 1.2.3 of the EIS, you will find the guidance EFSEC is employing in the review and potential recommendation of this project to the Governor, which includes "[the] policy of the state of Washington to recognize the pressing need for increased energy facilities". We hope that section may help in understanding the consideration behind the proposed project.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1071252	To whom it may concern: It's apparent regardless what the vast majority of people who live here WANT, you will be doing as you wish. We DONT WANT THE HORSE HEAVENS DESTROYED BY THESE. It makes no fiscal sense, no environmental sense, and doesn't , in any way, improve our area. LEAVE THE HORSE HEAVENS ALONE. You won't, your decision is made, and checking the boxes to force through what you, and the company doing this want, is apparently what will be.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Under Section 1.2.3 of the EIS, you will find the guidance EFSEC is employing in the review and potential recommendation of this project to the Governor, which includes "[the] policy of the state of Washington to recognize the pressing need for increased energy facilities". We hope that section may help in understanding the consideration behind the proposed project. In addition, the proposed project's economic and social impact is assessed in Chapter 4.16 Socioeconomics and its results would be held under consideration during project review by EFSEC. Chapter 4 in its entirety includes the environmental impacts that would be considered during proposed project review.	n/a	n/a
rwurdeman	1071369	I am 100% against this project. I love the Tricities for its recreation, weather, and small city atmosphere. I do not want to see it ruined by these ugly wind turbines and solar panels. This is a beautiful area and does not need to be scared by such ugliness.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1071490	I don't agree with the efficiency or effectiveness of wind power in our region however you are not looking for my opinion on that. This project is attempting to place a vast number of wind turbines along the crest of the Horse Heaven Hills. My concerns are very personal in that I have lived in my home for 20 years and this project will be littering my view of God's creation with unnecessary and very limited productivity wind turbines. We have extensive solar energy available along with unlimited Nuclear and Hydro power. My voice is small, but one member of the larger majority of southeastern Washington voices. Please don't do this, it will cause irreparable harm. Thank you, Jeff Seitz	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1071550	I am extremely worried about the wind turbine project. We moved to Kennewick because it's so pretty here and we love the community. We found the house of our dreams and we love the landscape view. I don't understand why this project has to be so close to the city and ruin the natural views when there is plenty of land between here and Oregon with hardly any houses or population. Please don't let this business ruin our beautiful landscape forever. We already contribute expanding. energy with dams and the nuclear energy which is expanding. If turbines are necessary, please move them away from the Tri Cities. 1,000 jobs are not worth the cost. We have plenty of jobs here especially in the energy and construction industry.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1071552	EIS should be based in science and without political overtones. This is not currently the situation, and given Gov Inslee's proclivity to dictatorship will not change. The proposed wind farm is not an energy source compatible with the location proposed. Does the wind not blow West of the Cascades where the most powers is consumed? Until hydro is deemed a renewable source and nuclear power is supported the push for WA to be "green", these conversations are without merit. The production of windmills, the lack of disposal/reclamation of these sites, the visual impact and numerous downside impacts make this an insult to the environment.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1071561	I will admit that I did not read all 161 pages (!) of the Executive Summary. However, I wanted to voice my strong disagreement with blighting yet more hills with these unsightly behemoths. The visual impact of these War-of-the-Worlds invaders is clearly documented on page ES-137 (screenshot attached), and it reads: "The proposed wind turbines, and comprehensive Project, would dominate views from many KOP locations, and the landscape would appear strongly altered" "Magnitude of Impact: High", Duration of Impact: Long Term", "Likelihood of Impact: Unavoidable" "Extent of Impact: Regional". And the proposed mitigation strategies boil down to: 1. Locate turbines >.5 miles from "foreground" 2. No signs on turbines 3. Keep towers clean That is not enough!! Please do not destroy our skyline! Do not locate these towers anywhere that would be visible along the I-82 corridor!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1071617	It is a fantasy that "green energy" will ever work - this is about government grift. No other project would be able to get away with the wholesale slaughter of birds and landscape blight these things will cause, but because it's "green" it's sacred and exempt. This will cause large scale negative changes in the ecosystem, but hey, the west side can feel good about their battle against carbon as China brings online a new coal fired power plant every month. Just say no.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1071704	It's really unfortunate that the people/companies who want to destroy our landscape with ugly wind turbines have no idea of the harm they cause. Killing birds, not producing enough energy to make them viable & the being buried underground & polluting the soil & water. They also require copious amounts of oil to run. It really doesn't make any sense to have these ugly creations cluttering our mountain tops.	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Water Resources	Impacts to water resources are discussed in Chapter 4.4 along with a determination of significance. Based on the Applicant commitments and the recommended mitigation measures no significant adverse effects were identified for water resources.	4.4	n/a
Anonymous User	1072102	I support the Horse Heaven Clean Energy Center because it is a step towards the carbon-free energy future we need to combat climate change while meeting the increasing energy needs of Washingtonians. Our state can and should be a national leader on clean energy development! We passed the Clean Energy Transformation Act with the goal of removing ourselves from fossil-fuel reliance. A big part of meeting that state goal is getting new, renewable energy resources online as in time to avoid energy shortages. Horse Heaven Clean Energy Center will add up to 1,100 MW of renewable energy to our grid along with battery storage to help address intermittent conditions. Horse Heaven Clean Energy Center is not the first solar or wind project that the state has greenlit, nor should it be the last. But, today, it is a critical step in the right direction for Washington to responsibly transition our remaining fossil fuel dependent energy sources to renewable energy, curbing emissions and meeting the needs of our communities. I strongly urge EFSEC to support this project and move it forward. Trudi Kubik - 1405 Garfield St. 98368	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1072104	I am writing to urge EFSEC to move the Horse Heaven Clean Energy Center project forward. Our state needs new renewable energy facilities to cut our emissions and combat climate change on pace with fossil plant retirement. Without added capacity of additional renewable energy, Washington can't meet its Clean Energy Transformation Act goals of becoming coal-fuel free by 2025 and fully renewable by 2045. 2025 is 2 years away! We need to make sure that Washington has the resources it needs to power our communities as we remove coal from our energy mix. Horse Heaven Clean Energy Center will produce up to 1,100 MW of renewable energy to support this need. Getting solar and wind energy online quickly, and responsibly, is critical to the health of our communities. Shirley Hogan - 6601 S. 8th St. #B3, 98465	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1072140	This letter is to inform EFSEC of my support for the Horse Heaven Clean Energy Center. This project would play a key role in helping us meet our state's goal to diminish our reliance on fossil fuels and make a transition to renewable, carbon-free energy. Washington is home to some of the country's leading solar, wind, and hydroelectric facilities. And we should not stop there—I strongly believe this project will act as a pivotal step to achieve our aggressive carbon reduction targets by expanding our clean energy production. Washington has taken an important step forward in the fight against greenhouse gas emissions by passing the Clean Energy Transformation Act. But the challenge ahead is significant. To achieve the objective of phasing out coal-fired power plants, it is our responsibility to respond to the urgency of the climate crisis in the short time we have left. The Horse Heaven Clean Energy Center project can help Washington secure a greener future. I appreciate the opportunity to share my support for the Horse Heaven Clean Energy Center. Kelly Hackett - 16015 13th Ave. E. 98445	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1072233	Assuming the project is approved the vendor should be required to provide money to cover the expenses to remove the windmills and any associated equipment. That amount should include funds to dispose of the windmills, concrete and other improvements such as roads so the land is in the condition prior to the initial installation. The sum should be in the future dollars to account for inflation.	General - Recyclability	The Applicant shall provide financial assurance sufficient for Decommissioning costs in the form of a performance bond, guaranty or a letter of credit to ensure the availability of funds for such costs (the "Decommissioning Security") to EFSEC.	4.7.2.4	n/a
Anonymous User	1072477	I favor the development of the Horse Heaven wind and solar project described in the Draft EIS. Continued growth in the Pacific Northwest requires development of additional power sources; the renewable power project supports the need for more power generation capacity AND does so using renewable energy. It is a win for everyone.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1072564	Chapter 2.1.3.12 Socioeconomic Environment lists 5 items that have little or nothing to do with socioeconomics. The four socio-economic factors include occupation, education, income, wealth and where someone lives. Dust suppression, engine idling time, noise mitigation, traffic management, and fire emergency response might fall into the "where someone lives" part but none of the other factors are addressed at all. Low income mostly non-Caucasian communities like Benton City and Finley need to be addressed and the DEIS has not done that.	Socioeconomics	Section 2.1.3.12 of the EIS lists relevant mitigation measures relevant to socioeconomics and wellbeing, not the components studied and analyzed for the socioeconomic resource topic. Section 3.16 describes the socioeconomic existing conditions including low-income and people of color communities and section 4.16 presents the analysis of potential impacts and mitigation measures on socioeconomics including low-income and people of color and consideration of environmental justice index. Sections 3.16 and 4.16 of the EIS present a comprehensive analysis of socioeconomic including but not limited to population and growth rate (including low-income and people of color population), economic conditions, fiscal conditions, taxation, workforce and economics, housing and schools.	3.16 and 4.16	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1072666	I am writing to express my support for the Horse Heaven Clean Energy Center and the role it will play in helping Washington achieve the ambitious decarbonization goals we set for ourselves with the passage of the Clean Energy Transformation Act (CETA) in 2019. I believe strongly in impact mitigation and value EFSEC's process, but know that Washington's ability to realize a carbon-free future will depend on permitting large-scale clean energy projects in a timely manner just like the Horse Heaven Clean Energy Center. This is a good project with appropriately identified mitigation measures, and backed by an experienced team that will produce up to 1,150 MW of renewable energy through a combination of wind, solar, and battery storage technology. With the passage of CETA, Washington established itself as a leader in the fight to curb global emissions. The state now has a responsibility to ensure the clean energy transition can be achieved in the necessary timeframe to facilitate fossil plant retirement, and in doing we can set an example for the rest of the nation to follow. Nicole Erickson - 15317N, Gleneden, 99208	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1072693	I am pleased to submit this letter to share my support for the Horse Heaven Clean Energy Center. The climate crisis is the defining challenge of our time, and it is imperative that we take action to mitigate its impacts. The Horse Heaven Clean Energy Center would be a crucial step in that direction. If approved, the project will help Washington meet its goals for reducing greenhouse gas emissions and move closer to becoming a carbon-neutral state by 2045. By investing in these large-scale clean energy projects, we can ensure that we meet the increasing energy demands in Washington with renewable sources. This project will have a combination of wind, solar, and battery storage components that will provide long-term energy viability. In addition to reducing carbon emissions, the Horse Heaven Clean Energy Center will also create jobs. The project is estimated to create over 900 construction jobs and 56 full-time jobs once operational. These are good-paying jobs that will have a positive economic impact on the communities in the Tri-Cities region. Once the project is completed, it will also generate millions in public revenue that could fund public safety and education. Washington has a responsibility to do its part by setting an aggressive timeline for retiring fossil fuel-powered plants, as well as permitting replacement power resources in a timely manner. The Horse Heaven Clean Energy Center will deliver substantial job growth and local economic development while reducing our state's reliance on fossil fuels and set us on a path to a cleaner, healthier future for all. I encourage you to consider these comments. Thank you for your time. Charlotte Songer - 4532 S. Puget Sound Ave Unit A, 98409	Agreement with the Project	Comment acknowledged.	n/a	n/a
rick zimmerman	1072769	Horse Heaven Wind Farm Draft EIS (December 2022) Executive Summary Comments Source: https://www.efsec.wa.gov/sites/default/files/210011/Executive%20Summary.pdf Page ES-38VIS-5: Avoid complete removal of vegetation beneath solar arrays during construction, where possible, to reduce the contrast between the exposed soil and adjacent undisturbed areas during project operation. If site grading requires the removal of vegetation, the area will be revegetated and maintained during project operation (BLM 2013). Comment: Avoid complete vegetation removal beneath solar rays increases operational and economic impact when the area is subjected to a wildfire which is identified as a high risk in Table ES-3a Section 4.13. This also seems in conflict with Table ES-3b Summary of impact during operation section on "Vegetation / Vegetation Maintenance (Section 4.5) which states: "During Project operation, vegetation may require maintenance, such as cutting or removal, for areas under the solar arrays, or along roadways." Table ES-3a Summary of Impacts during construction 1. Comment: The table does not identify the impact of greater fire risk during summer months when vegetation is dry. NOTE: BLM banned off-highway vehicles for many months in 2022 due to high fire risk 2. Comment: Table's Public Health & Safety / Fire (Worker Health and Safety) (Section 4.13) states: "Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. Section 4.13 Fire (Worker Health and Safety) Only mitigation listed related to topping or removal of trees. 3. Comment: Tables Transportation / Vehicular Traffic (Section 4.14) Table does not identify the increased potential of off-highway vehicles on haul roads caused by wildfires during construction being a greater fire risk during summer months when vegetation is dry. NOTE: BLM banned off-highway vehicles for many months in 2022 due to high fire risk Table ES-3b Summary of impact during operation section on 4. Comment: Table "Vegetation / Vegetation Maintenance (Section 4.5) fails to mention the removal of windblown vegetation against fences and structures to ensure ready access to equipment and minimize fire loading of blown-in dry vegetation. 5. Comment: Table Public Health and Safety / Fire (Worker Health and Safety) (Section 4.13) fails to include a discussion on the build-up of fire loading on fences and structures during seasonal fire weather conditions. This section also fails to discuss any impact and mitigation If a fire were to occur during turbine operation where the fire spreads to the ground during a structural collapse of a tower. Note: There is minimal discussion of this in Chapter 4 Table 4.13-3b (page 4-468) and Table 4.12-3c (page 4-469). Table ES-4a Summary of Impacts during by component during construction 6. Comment: Table's Public Health & Safety / Fire (Worker Health and Safety) (Section 4.13) states: "Fire resulting from Project construction is unlikely, but wildfire risk in the area is considered high. Section 4.13 Fire (Worker Health and Safety) Only mitigation listed related to topping or removal of trees. Chapter 4 – Analysis of Potential Impacts and Mitigation Source: https://www.efsec.wa.gov/sites/default/files/210011/Chapter%204%20-%20Analysis%20of%20Potential%20Impacts.pdf Section 4.13.2.4 Applicant Commitments and Identified Mitigation 7. Comment: The section lists the intent to comply with the Occupational Safety and Health Act of 2000. This reference is to an Australian rule. The correct citation should be "The Occupational Safety and Health Act of 1970". The authors may have been confused with Congress passing the OSHA Reform Act of 1999.	Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Vegetation	The recommended mitigation measure for vegetation removal along fence lines during maintenance. Propose an additional Recommended Mitigation Measure to address vegetation removal from fence lines and minimizing the buildup of dead vegetation during all phases of the Project.	4.5.2.5	Revise VIS-5 to "minimize vegetation removal" to be consistent with the veg section. Avoid is not reasonable as some removal is required. Revise the Vegetation Recommended mitigation to include removal of vegetation from the solar array fenceline during operations.
			Public Health and Safety	Section 4.13.2.1 of the EIS states that fire risk would be higher in summer. The Applicant's Draft Emergency Response Plan (Appendix P of the ASC) states that vehicles will be used only on roads where the roadway is cleared of vegetation and that vegetation will be controlled and maintained to reduce fire risk in compliance with the Revegetation and Noxious Weed Control Plan. The Applicant's Draft Emergency Response Plan also includes response measures in the event a fire occurs in the Project Area. The Applicant's ASC references the Occupational Safety and Health Act of 2000.	ES, 4.5, 4.13	n/a
Anonymous User	1073325	Section 2.1.1, Proposed Facility Site, states that "portions of the Lease Boundary may currently be enrolled in the U.S. Department of Agriculture's Conservation Reserve Program." Is it or isn't it? It makes a difference and needs to be nailed down better than this.	Chapter 2 - Proposed Action and Alternatives	At the time of the Applicant's Application for Site Certification (ASC), lands were enrolled in the U.S. Department of Agriculture's Conservation Reserve Program. Due to the length in time between the Applicant's ASC, DEIS, and FEIS lands may change their enrollment status.	2.0	Added language regarding length of enrollment.
Karen Brun	1073327	Section 2.1.1, Proposed Facility Site, states "This Draft EIS assumes that the road disturbance associated with Turbine Option 1 and Turbine Option 2 would be identical". More details are needed here. The disturbance cannot be identical when the height and length of the towers and blades are significantly more in Option 2, requiring much more gradual curves and significantly larger turning areas. Additionally, the massive weight of the nacelles, towers, and blades, will do significant damage to county roads.	Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
			Transportation	The Applicant's Transportation Study did not provide that level of detail. The Applicant was requested to provide a final transportation impact analysis for the Project prior to the Final EIS that would provide details on the required improvements for the construction of the Project.	4.14	n/a
Karen Brun	1073329	Section 2.1.2 states "The combination of components selected would not have a greater disturbance footprint than allowed for the in the SCA (if approved) and must satisfy all pre-construction conditions." What are those pre-construction conditions?	Chapter 2 - Proposed Action and Alternatives	Pre-construction conditions, along with the required mitigation measures, would be included in the SCA and include the appropriate federal permitting and licenses required.	2.0	n/a
Karen Brun	1073330	Section 2.1.2 states "Potential impacts related to the Project's component are generalized for the analysis of the Proposed Action when impacts are common within the Micrositing Corridor or Solar Siting Areas." This statement is a rationale for the analysis of only a single action alternative (the Proposed Action). What are the supporting documents?	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
Karen Brun	1073331	Section 2.1.2.1, Project Construction, states" Before construction could commence, a site survey would be performed during the micrositing process to stake out the final locations of the turbines, site roads, electrical cables, transmission line poles, access entryways, substations, BESSs, and other supporting infrastructure." Where exactly is all this stuff going to be? The local community deserves to know this before a single blade of grass is disturbed.	Chapter 2 - Proposed Action and Alternatives	Pre-construction surveys will be used to aid in the final design for the Project facilities within the micrositing corridor. Analyses in this EIS were performed on the entirety of the micrositing corridor.	2.0	n/a
Karen Brun	1073337	Section 2.1.2.1 lists construction activities, one of which is "Installing the electrical connection system - underground and some overhead lines." This makes it sound like they are only going to put in a few overhead poles when in reality SCE plans to install a huge kVA transmission line through the project. Please clarify.	Chapter 2 - Proposed Action and Alternatives	Table 2-2 of the DEIS provides information on the amount of disturbance proposed by the Applicant, including the amount of disturbance associated with the collector and transmission lines.	2.0	n/a
Karen Brun	1073338	Section 2.1.2 states "Construction material and equipment would be transported to the site primarily via road systems. The primary transportation route would follow Interstate 82 before reaching local and county roads that lead to the Project's Lease Boundary." Please provide documentation proving that the local and county roads are capable of handling the amount of weight each nacelle, tower, and blade assembly multiplied by 244 trucks times 3 as each wind turbine requires at least one truck for each of these components. Provide documentation and approval/permitting from the Benton County Transportation Department.	Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts to transportation resources from the Project. The Transportation Study provided as Appendix V of the ASC would be verified and updated to include detailed condition assessments of roads to be used, structural assessments, and plans for improvement and maintenance. The Applicant would coordinate with EFSEC and Benton County, to identify a qualified third-party engineer who would document road conditions prior to construction and again within 30 days after construction is complete or as weather permits. All road improvement and construction would be performed in conjunction with Benton County Public Works requirements following Benton County Standards. The Applicant would maintain new access roads to access the turbine structures during operations.	4.14	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.
Karen Brun	1073341	Section 2.1.2.1, Battery Energy Storage Systems, states "The details for the BESSs would depend on the final system selected." Lack of specificity makes it extremely difficult to evaluate this project with any accuracy.	Chapter 2 - Proposed Action and Alternatives	The Applicant did not include component specific information for the BESS. The analysis completed warrants that the amount of disturbance will not be larger than that proposed by the Applicant and that changes in impacts associated with more efficient technology are not expected.	2.0	n/a
Karen Brun	1073342	Section 2.1.2.1, Supporting Infrastructure, states "Where necessary, existing public and private roads may be temporarily widened and the turning radii increased." Most of the private roads are gravel. Are those going to be paved and how are you going to assure that they will not collapse under the immense weight of the components? What happens to them after the project is complete?	Chapter 2 - Proposed Action and Alternatives	See Section 4.14 of the Final EIS, which discusses potential impacts to transportation resources from the Project.	2.0	n/a
Karen Brun	1073343	Table 2.6: Example of Project Phasing, lists up to 10.2 miles (Phase 2/Alternative A) or up to 19.4 miles (Phase 2/Alternative B) of 230-kV gen-tie overhead electrical lines which seems way beyond the "some overhead lines" stated in Section 2.1.2.1, Page 2-12. Where exactly are these proposed overhead lines going to be located? Provide that information for both Alternatives A and B.	Chapter 2 - Proposed Action and Alternatives	Transmission lines are within the micrositing corridor unless they cross a road.	2.0	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Karen Brun	1073344	Section 2.1.3.1, Earth Resources, lists on Pages 2-21 and 2-22 a plethora of things the applicant is going to do. Who are the enforcement authorities for all these things and what recourse is there for failure to comply?	Chapter 2 - Proposed Action and Alternatives	The required mitigation measures will be included in the SCA and will include the appropriate federal permitting and licenses required. The Council will administer the SCA for the State of Washington.	2.0	n/a
Karen Brun	1073345	In Section 2.1.3, Applicant Commitments, another plethora of promises are listed on pages 2-20 through 2-31. Again, who are the enforcement authorities, who will be watching, and what recourses are in place?	Chapter 2 - Proposed Action and Alternatives	The required mitigation measures will be included in the SCA and will include the appropriate federal permitting and licenses required. The Council will administer the SCA for the State of Washington.	2.0	n/a
Karen Brun	1073347	Page 2-24 states "During construction, WDFW-recommended seasonal buffers (per Larsen et al 2004) for ferruginous hawk nests would be observed to avoid disturbing nesting ferruginous hawks. The applicant is citing an almost 20-year-old reference and the ferruginous hawk is not on the Washington endangered species list. A more recent reference is needed and what agreement is in place with WDFW to ensure the nests are not disturbed?	Wildlife and Habitat	The cited text from Section 2-24 is directly referencing commitments made in the Application. Section 4.6.2.4 of the EIS addresses potential impacts to ferruginous hawks including species specific mitigation measures (section 4.6.2.5).	2.1.3, 4.6.2.4, 4.6.2.5	n/a
Karen Brun	1073352	Page 2-24 states "All permanent met towers would by unguyed to minimize collision risk for wildlife." The met towers are to be 411' tall. Does Washington State allow met towers of this height to be unguyed?	Wildlife and Habitat	Structures will be constructed to meet certain standards for both health and safety. In lieu of guy wires, permanent foundations may be engineered to meet applicable structure stability standards.	N/A	N/A
Karen Brun	1073353	Page 2-24 states "The Applicant does not plan to pursue an eagle take permit but would re-evaluate eagle risk and the need for an eagle take permit throughout the life of the Project." So the applicant is going to wait to see how many eagles get killed and then evaluate whether a permit is needed? Where is the WDFW approval for this action, or inaction actually?	Wildlife and Habitat	Federal and state laws prohibit killing, injuring, or disturbing bald and golden eagles without a permit. An Incidental Take Permit authorizes take only where the take is incidental to and cannot practicably be avoided in the course of an otherwise lawful activity. Incidental Take Permits may be recommended by USFWS, but are not required. A violation of the Act can result in a fine, imprisonment, or both for a first offense.	N/A	N/A
Karen Brun	1073354	Page 2-25 states that "The Applicant would conduct two years of standardized post-construction fatality monitoring to assess impacts of turbine operation on birds and bats." Provide the reference for "standardized post-construction fatality monitoring". Also provide what is going to be done if the impacts on birds and bats is unacceptable. Once these turbines are up, it's too late for anything.	Wildlife and Habitat	The text referenced on page 2-25 is an Applicant specific commitment. The commitment references the WDFW Wind Power Guidelines (2009), which require bird and bat mortality surveys during early operation. As per recommended mitigation measure Wild-1, the Applicant would be required to share the results of the two-year bird and bat post-construction fatality monitoring with WDFW and EFSEC so that additional monitoring and mitigation requirements can be assessed. Additional mitigation measures may be required if greater than expected levels of mortality are recorded.	4.6.2.5	Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.
Karen Brun	1073358	Section 2.1.3.5, Noise. "Limit use of major excavating and earth-moving equipment to daytime hours (7 a.m.-10 p.m.)". In Eastern Washington, daytime hours end much earlier than 10 p.m. in the summer and don't start until much later than 7 a.m. in the winter. Who is going to monitor this and what recourse does the community have? We have a quarry less than a half-mile away that is not supposed to operate after 10 p.m. but they crush rock all night long and the authorities do nothing about it.	Noise and Vibration	Daytime hours are set by the state regulation (WAC 463-60-352) as 7 a.m. to 10 p.m., not by hours of daylight.	4.11	n/a
Karen Brun	1073359	Page 2-25 promises to "Utilize a complaint resolution procedure to address any noise complaints received from residents." Provide more detail on this (i.e., who assesses the validity of the complaint, how long it will take for a resolution, who we can speak with directly to ensure the complaint is resolved, etc.). I don't have much confidence in this at all.	Noise and Vibration	Details of the complaint resolution procedure have not yet been formalized.	4.11	n/a
Karen Brun	1073362	Page 2-26 states that "A Draft Emergency Response Plan that addresses fire and other emergency procedures has been developed and included as part of the ASC." Provide verification that the local fire chiefs have reviewed and approved this draft plan to ensure that it meets the unique requirements of fighting fires in this area.	Public Health and Safety	The Applicant has specified that the finalized Emergency Response Plan will be developed and implemented in coordination with the Benton County Fire Marshal and other agencies before construction.	2.1.3.6	n/a
Anonymous User	1073552	Section 2.1.3.8, Aesthetics, pg. 2-27, "The turbines and solar arrays would be uniform in design to present a trim, uncluttered, aesthetically attractive appearance." On what planet is a forest of wind turbines considered 'aesthetically attractive"? Provide surveys from communities subjected to more than 150 wind turbines supporting this statement.	Visual Aspects, Light and Glare	Text will be revised to more correctly state the goal is to create visual order and unity among turbine clusters.	2.1.3.8	Change "...present a trim, uncluttered, aesthetically attractive appearance" and more correctly state the goal is to "create visual order and unity among turbine clusters and solar arrays".
Anonymous User	1073553	Section 2.1.3.8, Aesthetics, pg. 2-27 "The only exterior lighting on the turbines would be aviation warning lights..." Given the 2-mile proximity to significant residential neighborhoods, provide justification for not using ADLS.	Visual Aspects, Light and Glare	Comment noted and additional mitigation measures (such as using ADLS) recommendation will be considered.	2.1.3.8	n/a
Karen Brun	1073555	Section 2.1.3.8, Aesthetics, pg 2-27 "The turbines and solar arrays would be uniform in design to present a trim, uncluttered, aesthetically attractive appearance". Provide survey results from communities subjected to 150+ wind turbines supporting the statement that they are 'aesthetically attractive'.	Visual Aspects, Light and Glare	Text will be revised to more correctly state the goal is to create visual order and unity among turbine clusters.	2.1.3.8	Change "...present a trim, uncluttered, aesthetically attractive appearance" and more correctly state the goal is to "create visual order and unity among turbine clusters and solar arrays".
Karen Brun	1073556	Section 2.1.3.8, Aesthetics, pg 2-27: "The only exterior lighting on the turbines would be aviation warning lights..." Provide the exact type of aviation warning lights. If they are not ADLS, provide justification for using that technology given the proximity of several heavily population neighborhoods within 2 miles of the east most turbine array.	Visual Aspects, Light and Glare	Comment noted, exact type of aviation warning lights have not been identified other than they will meet FAA requirements. Additional mitigation measures (such as using ADLS) recommendation will be considered.	2.1.3.8	n/a
Karen Brun	1073561	Section 2.1.3.9, Recreation, pg 2-28: "Commitments specific to recreation were not proposed. Site-specific BMPs implemented during construction and operation to minimize potential impacts of noise, traffic, and visual surroundings would minimize impacts on recreational users." Why were commitments specific to recreation not proposed? The turbines above Kiona and Benton City are a direct danger to paragliders and hang gliders who use that area as a jump-off point. Installing turbines that close to this significant recreational areas is unconscionable and unnecessary.	Recreation	Applicant commitments were not provided in the Applicant's ASC for recreation. EFSEC provided mitigation measures for the Project in Section 4.12 of the DEIS. As part of Mitigation Measure R-1, the Applicant is required to develop and maintain an adaptive safety management plan to keep recreation enthusiasts safe. Paragliding is an unofficial recreational activity at the launch locations on public lands closest to the Project.	4.12	n/a
PJKrupin7022	1073564	Please extend the adjudication and the DEIS comment period to 90 days. The weather and road conditions are so bad that it is impossible to conduct safe tours of the Horse Heaven Hills project site in order to see and intelligent comments based on actual natural observation. The ice and snow make driving so hazardous that the entire site is inaccessible. We cannot take road tours with local residents who are interested, or with media, or with local city, county and newly elected state representatives. This severely and significantly impacts the ability for anyone to do any in person field observations with the purpose of verifying the information presented in the DEIS and identify valid or important issues that are to be considered during the adjudication process. The weather in particular makes it impossible to reasonably evaluate the visual impacts of the proposed 499 foot high or 691 foot high turbines due to the inability to see the wind turbine locations and micro-siting corridors, infrastructure facilities on the project. The photo attached, taken from the corner of South Ione and Kennewick Ave in downtown Kennewick, shows the ridgeline to the Horse Heaven Hills south of Kennewick WA with the 260-foot high turbines of the Nine Mile Canyon project to the left and right of Jump Off Joe. The turbines just above the school building are 6 miles away, and the turbines on the ridge are seven miles away or more. The HHH turbines are more than 1.7 and 2.4 times the height of the Nine Mile turbines and will be highly more visible than ones depicted. It will take time to locate and then evaluate the impacts once the reasonable access to the project site is restored. We request that time be granted to allow for proper consideration of the DEIS and the adjudication process, once access to the site has been restored.	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies of the DEIS were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Please note, under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
Karen Brun	1073565	Section 2.1.3.10, Historical and Cultural Resources, pg. 2-28: "Prior to construction of the Project, a qualified archaeologist would be retained and would provide a cultural briefing that includes..." Provide justification why this isn't being done prior to permitting.	Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. As stated in the updated ASC, the Applicant will comply with the requirements of WAC 463-72, Site Restoration and Preservation. At least 90 days prior to beginning construction, the Applicant would provide the Council with a Site Restoration Plan describing measures that would be taken at the conclusion of the Project's operating life. This includes Historic and Cultural Resource Mitigation Measures from Section 4.2.5 of the updated ASC. The referenced Applicant Commitments in EIS Section 2.1.3.10, including "Beginning prior to the construction of the Project...", will be implemented as a part of the Project siting process and prior to any impacts from the Proposed Action in compliance with RCW 27.53, Archaeological Sites and Resources. As stated in EIS Section 2.1.3.10, "An Archaeological Excavation and Removal Permit would be pursued if any alteration of any precontact archaeological site were to occur, regardless of the level of disturbance. For historic-era archaeological sites, permits would be pursued for any removal or excavation of those that are eligible for or listed on the National Register of Historic Places." Therefore, the referenced Applicant Commitment would be implemented prior to permitting.	4.9, 2.1.3.10	n/a
Karen Brun	1073568	Section 2.1.3.10, Historical and Cultural Resources, pg 2-28: "If requested, a local tribal representative(s) would be invited to participate in the environmental training to discuss or provide text from a tribal cultural perspective regarding the cultural resources within the region." Provide justification why the Yakama Nation was omitted on the Section 9.2 Tribal Governments distribution list. The YN is the tribe that has the most interest in this area.	Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. Per EFSEC's website in EIS Section 9.2 Tribal Governments, Confederated Tribes and Bands of the Yakama Nation is listed in the middle of the first column of the Tribal Government distribution list.	4.9, 9.2	n/a
Karen Brun	1073570	Section 2.1.3.10, Historic and Cultural Resources, pgs 2-28 and 2-29 "The following are commitments proposed by the Applicant..." Very few, perhaps even none, of these commitments are remotely enforceable unless the experts are on site all the time. Explain how these commitments are going to be assured. Who is going to be monitoring all this stuff during construction?	Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. As stated in EIS Section 2.1.3.10, Tribal representatives would be invited to monitor the site during construction. Recorded cultural and historic resources would be avoided through modification of Project design and through buffers and protective signage or flagging, as well as monitoring, as appropriate. As stated in section 4.2.5.3 of the updated ASC, implementation of commitments will also be ensured through cultural resource worker education/training, the Preconstruction Survey and Cultural Resource Avoidance Plan, and an Inadvertent Discovery Plan for Archaeological Resources during Construction. To address the statements regarding the presence of experts and the identity of the construction monitors: the Applicant Commitments could be clarified to state that monitoring would be conducted by qualified professional archaeologists.	4.9, 2.1.3.10	n/a
Karen Brun	1073576	Section 2.1.3.12, Socioeconomic Environment, pg 2-31: "The following commitments are propose by the Applicant and described in detail in Section 4.4 of the ASC." Active dust suppression, engine idling, noise mitigation, Traffic Management Plan, Emergency Response Plan. These things have little to do with socioeconomics which include income, education, employment, community safety, and social supports.	Socioeconomics	Section 2.1.3.12 of the EIS lists relevant mitigation measures relevant to socioeconomics and wellbeing, not the components studied and analyzed for the socioeconomic resource topic. Section 3.16 describes the socioeconomic existing conditions including low-income and people of color communities and section 4.16 presents the analysis of potential impacts and mitigation measures on socioeconomics including low-income and people of color and consideration of environmental justice index. Sections 3.16 and 4.16 of the EIS present a comprehensive analysis of socioeconomic including but not limited to population and growth rate (including low-income and people of color population), economic conditions, fiscal conditions, taxation, workforce and economics, housing and schools.	3.16 and 4.16	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Karen Brun	1073578	Section 2.2., Alternative Carried Forward for Detailed Analysis, pg. 2-31. "The Solar Only and Wind Only alternatives were eliminated from detailed analysis because they would not generate the designed nameplate generating capacity required by the Applicant." The Applicant has plenty of acreage on which to locate solar arrays. These can even be installed on sloped areas that would not be amenable to wind turbines. Significantly reducing the number of turbines and increasing the number of solar arrays to achieve the designed generating capacity would be much more palatable to the surrounding communities. The lower profile would preserve the pristine Horse Heaven Hills ridgeline and the recreation areas, and decrease bird/bat kill. Endangered species habitat could be more easily avoided. Provide justification why a configuration of fewer wind turbines and more solar arrays is not being considered. The local community should have a say in where the remaining turbines are located to minimize the visual impacts. It seems like a win-win.	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
Karen Brun	1073587	Executive Summary VIS-1, pg. ES-38: "Relocate turbines located within the foreground distance zone (0-0.5 miles) of non-participating residences to avoid completely dominating view from these highly sensitive viewing locations. Siting the turbines further away would reduce the level of visual contrast and prominence." I would suggest that there be no turbines within at least 4 miles (as the crow flies) of non-participating residences. Due to the elevation of these residences and the prominence of the turbines on the ridgeline, a half mile is going to do no good whatsoever. There is plenty of land in the Lease Boundary Area to move all of the Phase 2 turbines "over the bend" so to speak so they would not be visible from elevated neighborhoods.	Visual Aspects, Light and Glare	Comment noted. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the Final EIS
Karen Brun	1073592	Table ES-3a: Summary of Potential Impacts of Comprehensive Project during Construction of the Proposed Action, Water Resources (Section 4.4) pg. ES-48 states "Project construction activities would rely on water supplied by the City of Kennewick Public Works." In a conversation with the C of K Public Works Deputy Manager, he stated that the applicant had been notified in May 2022 that Kennewick would NOT be supplying water for this project, yet here it is still in the DEIS. Where is the water going to come from?	Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	3.4.1.5 and Section 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
99337-2794	1073595	My concern with the project is the lack of discussion concerning recycling. For example, in the United States, retired wind turbine blades are primarily sent to one of a small number of landfills (https://kleinmanenergy.upenn.edu/news-insights/wind-turbine-blades-options-at-end-of-life/). This is not sustainable. There are alternatives. Solar energy in the U.S. is expanding rapidly. But according to UCSUSA, only 10% of solar photovoltaic (PV) panels are recycled. We can't keep burying this stuff (and our heads) in the sand. We need to work towards circular supply chains.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1073617	We don't need it nor do we want a wind farm on horse haven. Put in more nuclear facilities that have a proven shot at providing the electricity that we need. It's a clean energy and not an eye sore that the wind mills produce. And the noise produced by the wind farm is more then I want to hear. Not even the solar system at eye pleasing, but at least they don't make noise. And they don't kill birds.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
Karen Brun	1073837	Section 2.1.1, pg. 2-5, states "portions of the Lease Boundary may currently be enrolled in the U.S. Department of Agriculture's Conservation Reserve Program." Are they or aren't they? Confirm if those portions are in this program and what the ramifications for the project are.	Chapter 2 - Proposed Action and Alternatives	At the time of the Applicant's Application for Site Certification (ASC), lands were enrolled in the U.S. Department of Agriculture's Conservation Reserve Program. Due to the length in time between the Applicant's ASC, DEIS, and FEIS lands may change their enrollment status.	2.0	n/a
Karen Brun	1073849	Fact Sheet, Project Location, states "The Project is located approximately 4 miles south/southwest of the city of Kennewick and the larger Tri-Cities urban area, along the Columbia River." While this may be true of the portion to the south from west of Finley to I-82, it is not true beyond that point. I suspect the Applicant used the city limits as the starting point but there are many well-populated residential areas outside the city limits and they will be within .5-2 miles from the closest turbines. Please correct this error.	Fact Sheet	The closest distance from the lease boundary to the City of Kennewick is approximately 4 miles.	n/a	Update to the scale on figures that depict the proximity of the Project to surrounding jurisdictions.
Karen Brun	1073860	Fact Sheet, Required Permits, Approvals, and Licenses states "EFSEC's Site Certification Agreement (SCA) preempts otherwise applicable state and local regulatory permits pursuant to RCW 80.50.110 and RCW 80.50.120." Does this mean that every permit or approval on the list in Table 1.1-1 is thrown out? I'm particularly interested in the one about Oversize and Overweight Permits because disregarding this could constitute a serious safety hazard and could result in serious injury. Given the extraordinary weight of the nacelles (71+ tons) and towers (54+ tons), multiplied by 150 or 244, unacceptable stress will be put on the Benton County roads which are paid for and maintained through local property taxes. Is EFSEC accepting responsibility for injury and damage claims? If not, who is? Certainly not Benton County since they had no say in the matter.	Fact Sheet	EFSEC was created in 1970 to provide "one stop" siting and permitting for large energy projects. By establishing the Council, the state legislature centralized the evaluation and oversight of large energy facilities within one state agency. The legislature cited the necessity of balancing the need for new energy facilities with the broad interests of the public. As part of the balancing process, the Council must take into account protection of environmental quality, the safety of energy facilities, and concern for energy availability. The Council's responsibilities are listed in the Revised Code of Washington (RCW) 80.50.	n/a	n/a
			Transportation	This State Environmental Policy Act analysis identifies and analyzes environmental impacts associated with the governmental decision to permit this Project. The DEIS describes those impacts. EFSEC is the state's regulatory agency that determines compliance with state laws and the terms set in the SCA. EFSEC contracts with other state agencies for on-site inspections. The Council has the regulatory authority to enforce compliance with a state laws and the conditions in the SCA through fines and other actions.	4.14	n/a
Karen Brun	1073885	Given the statement on the Fact Sheet and in Chapter 1, pg. 1-7, "For facilities under its jurisdiction, EFSEC's governing statutes and rules preempt all aspects of the certification and regulation of energy facilities approved under RCW 80.50. As a result, state and local regulatory permits, requirements, and standards may not apply to the proposed Project. Table 1-1 lists the generally applicable state and local permits and approvals that would apply if the Project were not under EFSEC's jurisdiction." Does this mean that every WAC, RCW, CWA, and BCC as they relate to this project can be ignored?	Chapter 1 - Project Background	EFSEC was created in 1970 to provide "one stop" siting and permitting for large energy projects. By establishing the Council, the state legislature centralized the evaluation and oversight of large energy facilities within one state agency. The legislature cited the necessity of balancing the need for new energy facilities with the broad interests of the public. As part of the balancing process, the Council must take into account protection of environmental quality, the safety of energy facilities, and concern for energy availability. The Council's responsibilities are listed in the Revised Code of Washington (RCW) 80.50.	n/a	n/a
Anonymous User	1074200	I support the Horse Heaven Clean Energy Center because I support a greener and cleaner future for Washington State. A large-scale clean energy project like the Horse Heaven Clean Energy Center will help Washington reach a carbon-free future and even position our state as a leader for renewable energy. By greenlighting projects like this, Washington can be a change leader, both regionally and nationally, with home-grown power supply solutions. This project will not just help the state as a whole – it will also benefit the local economy by providing over 900 construction jobs and 56 full-time jobs, while generating tax revenue to support public services for the Tri-Cities community. I write you to express my wholehearted support for this project because the benefits, locally and globally, are what we need to sustain a greener future. The state has a responsibility to foster positive environmental impacts, and the Horse Heaven Clean Energy Center can be a key step to making a real difference for the climate. Thank you for considering a greener, cleaner future. Nathan Rockwell - 5720 East Mckinley Avenue, 98404	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Karen Brun	1075523	Sec. ES-2.1, pg. ES-1, states that "at it's closest point, the Project would be located approximately 4 miles south/southwest of the City of Kennewick and the larger Tri-Cities urban area." This statement is false because: Using the scale provided by Scout, a review of Figure ES-1 clearly shows that the closest point to the Kennewick City limit is 2.5 miles on the east side of I-82/H-395, <2.5 miles on the west side, and 1.25 at the Benton City limit. Significant populations exist between these city limits and the project boundary. The applicant needs to revisit and correct this error.	Executive Summary	The closest distance from the lease boundary to the City of Kennewick is approximately 4 miles. The figures in the EIS have been adjusted to accurately reflect the distance.	ES-1	Update to the scale on Figure ES-1
Karen Brun	1075551	Sec. ES-3.2.1 Special Studies, pg. ES-7, refers to Appendix 4.10-1 which supposedly focuses on "potential visual impacts resulting from modification of the landscape and the response of viewers to those features." It also states "Information and conclusions presented in the special study focused on the introduction of the Proposed Action into the setting and characterization of long-term modifications to the existing landscape's form, line, color, and texture (SWCA 2022)." I object to this because: I did not find a reference in the Executive Summary, Acronyms and Abbreviations, that refers to this. Lots of internet references to Star Wars but that's probably not it. The referenced Table 4.10-1 analyzes glare inputs and assumptions and nothing else. There is much more to visual impact than that (i.e., a forest of turbines destroying the landscape's form, line color, and texture, and flashing red lights all night long).	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 and Appendix 3.10-2 of the EIS. The reference in the Executive Summary will be updated.	ES-3.2.1	Change Appendix 4.10-1 to Appendix 3.10-2
Anonymous User	1075762	QUOTE from Horse Heaven Wind Farm, LLC, Aesthetics Technical Memorandum, 2.2.1 TURBINE VISIBILITY, page 9 "Project Turbines under Turbine Layout Option 2 would potentially be visible from a slightly portion of the analysis area , approximately 87 percent of the area located within 5 miles of the Project and approximately 83 percent of the area within 10 miles of the Project." To Close, To Tall to 300,000 people.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1077462	To whom it may concern: I oppose the HH Hills project as proposed. The project polluted our landscape with inefficient wind turbines that only benefit a few financially. The power produced will not benefit the Tri-Cities community and provides little in terms of long term employment or benefit to the community and businesses. Of course this is all well known, but seemingly ignored. Long story short our community pays the price while a few prosper. Please deny the request and keep our scenic natural beauty as is. If large community like Seattle and LA want wind power then they can install the windmills in their own towns & cities. Thank you. Kevin Cochrane E. 297th Kennewick WA	Socioeconomics	Project location is selected based on several factors including but not limited to viable above-average wind speeds in the area, sufficient flat area and solar irradiance to site solar PV panel, proximity to existing transmission lines and willingness of to participate in the Project. Power would be transmitted to a purchaser under a contract with the Applicant. Such power purchasers could include but is not limited to any of the local or regional utilities, or commercial and industrial power users. Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	1.3, 3.16 and 4.16	n/a
Central Washington Construction Trade Unions	1078362	Please see attached comments submitted on behalf of the Central Washington Construction Trade Unions.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1079872	We are already in a climate emergency. It's paramount we transition to clean energy sources immediately.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1080013	It is more important now than ever to make the drastic changes the natural world needs in order for any life including humans to survive and thrive, but the negligence of the worlds governments allowing the earth's resources and environment to be exploited by oil companies and plastic producers and commercial fishing for the past 100 years has left our livelihood in serious crisis. I as a resident of Washington state feel that our state needs to lead the way for the rest of the country. And yes I want greener energy, and love the idea of solar power for our primary source of energy. I do not agree with leaving the snake River damns up though. I want to make that clear. I love wildlife more than anything and the southern resident orcas are literally starving to death due to a lack of salmon. Just in 2018 a mother southern resident orca varied her dead baby through the water for 17 days and over 1000 miles and to me that was a scream for help and we humans have the power to help if leaders would just make the right choices. She was showing the world that they are dying and that it's our fault but we can help. So the damns need to go, but if leaders make strategic decisions we can have both. A better cleaner world for us and for all wildlife. We need the natural environment and all other living beings on this planet. So please make smart decisions for all not just humans. It breaks my heart how much wildlife and the natural world has suffered and sacrificed due to human's greed and negligence. and in the end we depend on all ecosystems and we are on the verge of seeing catastrophic impacts to these very ecosystems we depend on. Thank you Miss Crystal Lynn Fisher	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1080028	It only makes sense to plan for a cleaner future.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1080221	This looks and sounds like a very good idea. We need to do something to stop the rise in temperature. This looks like a good starting place.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1080274	I am concerned about accuracy and integrity with carbon footprint calculations of alternative energy sources. In 2017, the rural community of Newport, WA in Pend Oreille County was threatened with the possibility of a coal-burning silicon smelter being located in our rural area and within a mile from Newport schools and downtown Newport.The PacWest/HiTest silicon smelter claimed that 50% of their product would be for solar panels, and that their smelter would be a "Green" facility. They later back-tracked and stated that only 5% of their product would be for solar panels. The smelter would emit 766,000 tons of GHGs per year (plus tens to hundreds of tons of other coal toxins per year). I began an investigation into silicon smelting impacts on solar panel carbon footprints, and what I have found is very disturbing. I found that the silicon smelting process is NOT included in silicon solar panel carbon footprints, and that the LCI/LCA process for determining carbon footprints is highly subjective, and gives inconsistent and non-comparable results. Please read my guest opinion "Silicon Smelting Process Tarnishes "Green" Solar Panels" in the April 5, 2022 Spokesman Review Newspaper, and my pre-print paper: "The Impact of Silicon Smelting on Crystal Silicon Solar Panel Carbon Footprints" on ResearchGate. I am very concerned about climate change, but what I have found regarding silicon solar panels and carbon footprint calculations tells me that there is corruption in some alternative energy claims; and until this is fixed, we will continue to exacerbate the impacts of climate change. Thank you, John M. Endres jmmendres@tds.net	Air Quality	A substantial range of life cycle green house gas (GHG) emissions has been reported in the literature. In 2021, the United States Department of Energy National Renewable Energy Laboratory (NREL) published a comprehensive review and comparison of life cycle analyses (LCA) of GHG emissions from electric generation (Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update, accessed on February 23, 2023 at https://www.nrel.gov/docs/fy21osti/80580.pdf). The evaluation indicates that median reported life cycle GHG emissions from wind and solar photovoltaic electric generation, 13 and 43 g CO2e/kWh, respectively are more than an order of magnitude lower than median reported life cycle GHG emissions from natural gas, oil or coal-based generation (486, 830 and 1001 g CO2/kWh) and comparable to median life cycle emissions from nuclear and hydropower of 13 and 27 g CO2e/kWh, respectively. Natural gas, nonhydroelectric renewable resources (mostly wind), nuclear energy, and coal generate almost all the rest of Washington's in-state electricity. Natural gas is the second-largest source of in-state net generation, and it fueled 12% of the state's total electricity generation in 2020 (Washington State Profile and Energy Estimates, US Energy Information Administration as accessed February 23, 2023 at https://www.eia.gov/state/analysis.php?sid=WA#:~:text=Natural%20gas%2C%20nonhydroelectric%20renewable%20resources%20%28mostly%20wind%29%2C%20nuclear,of%20the%20state%27s%20total%20electricity%20generation%20in%202020). As a result, life cycle GHG emissions from the Horse Heaven project are expected to result in generation that is comparable to or less than other forms of bulk generation available from the grid.	4.3	n/a
KMSelf	1080805	Has the Corp of Engineers been involved or commented on installing culverts and adding fill in the effected draws and tributaries for the new permanent roads for this project.	General - Question for EFSEC	The United States Army Corps of Engineers Seattle District Regulatory Program evaluates applications for permits for proposed activities in "Waters of the United States" (including wetlands) throughout the State of Washington under the authorities of Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act, and the Marine Protection, Research and Sanctuaries Act.		
Anonymous User	1081671	The Horse Heaven Hills Solar and Wind project will provide hundreds of millions of dollars for our local economy and over 900 jobs for the working people who build and maintain our community. Additionally, with the winters getting colder, the summers getting hotter, and fires becoming an entire season we need all the local power generation we can get.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1081707	I believe the horse heaven hills solar wind project will not only provide union jobs but also give back to the community with green energy	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1081711	I am a union electrician living in the Tri Cities and working in the Tri Cities and surrounding areas. I fully support this installation, for the good, high paying skilled labor jobs it will require for construction, as well as the property tax offset it provides for local citizens, and the continuation of our progress to eliminate the need for energy produced from fossil fuels.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mary R. Smith	1081983	Please find attached letter.	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1083315	I have grave concern for impacts on soil disruption during the preparation and installation of these massive eye sores. Management of small particle airborne dust is going to be a major issues for all land owners downwind of the 72,000 or so acres of broken ground that the project covers. And the soil erosion that is bound to happen as the ground surrounding the windmills dries out is also going to be a problem for agriculture and wildlife. Likewise, thousands of residents could face adverse health outcomes with compromised air quality due to increased particulates; as well as coping with possible damage to property and exterior machinery/systems for the same reasons. Put these windmills out where nobody lives, about 10 miles south of Badger Canyon. I don't even understand why some people think this is a good idea...	Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Earth Resources	See Section 4.2 of the Final EIS, which discusses potential impacts to earth resources from the Project.	4.2	n/a
Anonymous User	1083326	The materials and energy used to make these windmills outweighs the energy they the generate. Most parts of these structures are non-recyclable when they reach the end of their lifespan. Can you please imagine miles of Seattle Space Needles standing in rows on a ridge? The unending noise pollution, and hundreds of feet tall, each lined with blinking red lights, for miles? That alone will destroy the environment for wildlife and landowners alike. These structures are a total waste of materials, resources, land, and tax dollars. A fraud, really. It seems to be purposeful economic destruction.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1083717	To whom it may concern, I'm opposed to any and all wind farm projects. They distract from our beautiful vistas and add visual noise. I'm challenging whether they will truly add as much as claimed to the local economy over the proposed timeframe. The timeframe seems long enough that during that period the technology will likely become obsolete (no longer financially effective as was proposed). Thank you, Concerned resident of Benton County, WA.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Beyond the growing demand from utilities, industrial power buyers have announced plans to purchase renewable energy and wind and solar energy are poised to help meet this demand over long term periods. Also, construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16	n/a
Anonymous User	1083786	No on the Wind Farm in the horse heaven hills.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1084059	The impacts of climate change in the Pacific Northwest are becoming increasingly apparent to those of us lucky enough to call Washington home. Our marine life is under threat. Our forests are struggling. In September, Seattle had the worst air quality in the world due to wildfire smoke. How is the above relate to car emissions?????	Air Quality	A comparison of the GHG emissions to other available forms of bulk electricity generation would be a more relevant comparison. As noted in response 184, life cycle GHG emissions from the Horse Heaven project are expected to be less than or equal to life cycle GHG emissions from other forms of electricity generation and is therefore expected to improve or be neutral with respect to Washington State current GHG impacts on climate change.	4.3	n/a
Anonymous User	1084110	The time for action is now. Let us be an example of responsible climate leadership by making Horse Heaven the most environmental standard of excellence and as a bar to meet and exceed going forward.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1084271	i am DEFINITELY "for" the Horse Heaven Clean Energy Center (!!)---I certainly hope it will be as successful as it can possibly be (!!) SINCERELY, David M. Scheer, D.C.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1084470	I'm not in favor of this environmental eye sore. Way too expensive, maintenance intense, low payback yield, environmentally detrimental.	General - opposition	Thank you for your comment; your concerns have been noted. All of your listed concerns: economic, maintenance, and environmental impacts are covered in this EIS and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor.	n/a	n/a
Anonymous User	1084649	we need to do as much as we can to combat climate crisis NOW!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1085410	Why is an out of state company being allowed to come here and place windmills where they aren't wanted or needed. We don't need the power in our area and our land is being used for more populated cities power. If they need power then put them in their cities. The research for the sound pollution isn't being addressed here. The negative environmental impacts to our area and the native birds aren't being addressed either. This isn't wanted in the Tri Cities.	Noise and Vibration	"Sound pollution" is addressed in Section 4.11 of the EIS.	4.11	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds and bird strikes, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1085437	I object to the wind farm project. I live on the boundary of turbines will be and I know FOR A FACT this will harm wildlife. We constantly have birds of prey that fly over our home all year round including the migration path of the snow geese and the sandhill cranes. With the many turbines that are across the miles they will be definitely be impacted. There is plenty of land to be had that is not in migration path or directly next to a huge sprawling city that you could put this wind farm at that does not impact our towns, farms & migrating animals. If you were to perform a non-influenced study of threats to the animals you would see this would effect eagles, hawks, cranes, geese and more. I am including a photo to show how low they fly. With the incredible height of the turbines that you are proposing they wouldn't have a chance. :(	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1085450	Big concerns are the wildlife kill, especially the raptors which soar the ridges. This wind farm proposal will most likely decimate the raptors with no opportunity to recover as the windmills will always be there taking their toll. The studies on the height and number of blades seems inconclusive. The right number of blades is 0 to protect our fragile environment and wildlife. The noise generated by the windmills has not been studied as the location has not been determined. These are incredible noise generators with the impact on human and animal health has not been determined. 20 year life is laughable. My understanding is that is the life a wind turbine with little to no recycling capability. How are these going to be disposed?	Wildlife and Habitat	The risk of bird collisions with the turbines is discussed in Section 4.6.2.2 of the EIS. The EIS considers potential disturbance to wildlife from noise, light and other sensory disturbances in Section 4.6.2.2.	4.6.2.2	n/a
			Noise and Vibration	Windmill layouts for turbine option 1 and option 2 have been provided in Section 2 of the EIS and impacts on Noise and Vibration have been outlined in Section 4.11 of the EIS. The layouts are approximations as the Applicant is requesting the flexibility to site turbines anywhere within the micrositing corridor.	4.11	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
City of Kennewick City Council	1085458	From the City of Kennewick City Council	Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	3.4.1.5 and Section 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
Anonymous User	1085483	I'm concerned about the impact this projected wind farm will have on wildlife, quality of life for nearby homeowners, i.e., turbine noise, and property values of nearby homeowners.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Noise impacts are addressed in Section 4.11 of the EIS	4.11	n/a
			Socioeconomics	Wind farms are not anticipated to negatively impact the property values of agricultural properties that host wind turbines. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1085490	I'm very concerned about the impact to the natural habitat for wildlife in the Horse Heaven Hills area. We all know about the noise caused by the turbine blades, we know the blades kill birds (some protected species), leaking oil/airborne blades, and we all know that so many of these monstrosities AREN'T BEING RECYCLED! In this day and age, why? We don't need more items that need to be buried in our soil. Hydroelectric power is so efficient and they've found ways to protect fish migration. We need more ways to protect our environment instead of sabotaging it with more things that can't be recycled. https://www.bloomberg.com/news/features/2020-02-05/wind-turbine-blades-can-t-be-recycled-so-they-re-piling-up-in-landfills?leadSource=uverify%20wall ... also ... https://projects.oregonlive.com/wind-farms/	Wildlife and Habitat	The risk of bird collisions with the turbines is discussed in Section 4.6.2.2 of the EIS. The EIS considers potential disturbance to wildlife from noise, light and other sensory disturbances in Section 4.6.2.2.	4.6.2.2	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1085524	I am a resident near the proposed area on Country Meadows Lane. I am concerned about drop in property value, danger to wildlife like birds, the noise generated, the cost to subsidize these units, the dust emissions generated, the unsightly lights and structures, and the traffic to construct and maintain the units.	Wildlife and Habitat	The risk of bird collisions with the turbines is discussed in Section 4.6.2.2 of the EIS. The EIS considers potential disturbance to wildlife from noise, light and other sensory disturbances in Section 4.6.2.2.	4.6.2.2	n/a
			Noise and Vibration	Noise impacts are addressed in Section 4.11 of the EIS	4.11	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.
Anonymous User	1085641	I want no part of the sight, sounds, and habitat dangers that come with a wind farm in my back yard, for which I enjoy no benefit.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS	n/a	n/a
Anonymous User	1085659	I strongly feel that any further wind mill development will be a significant blight on our area as they are unsightly and not a viable solution to electrical power generation.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1085685	We have lived in the Tri Cities area for over 40 years. Addition of the proposed wind farm will desecrate the area by killing birds unnecessarily, destroying the habitat of spotted owls and leaving waste from broken windmills that rust and ruin the soil.	Wildlife and Habitat	The risk of bird collisions with the turbines is discussed in Section 4.6.2.2 of the EIS. The EIS considers potential disturbance to wildlife from noise, light and other sensory disturbances in Section 4.6.2.2. Species specific assessment for special status species are provided in Section 4.6.2.4; however, as spotted owls are not found regionally they have not been included in the EIS.	4.6.2.2, 4.6.2.4	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1085692	As a residential owner, I am concerned with the lack of detail studies in turbine noise and vibrations, increased dust in an already known wind/dust zone and detailed water source for construction and operation. The previous studies presented do not have a plan should any of the above concerns prove to be an impact on humans, wildlife or the environment.	Noise and Vibration	Noise and vibration impacts are addressed in Section 4.11 of the EIS	4.11	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	3.4.1.5 and Section 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
Anonymous User	1085695	My name is Shane Schmidt and I live near this proposed project. I am concerned of the negative impacts of the project. There will be definite negative impacts to the wildlife from the construction and operation of the wind turbines. The increased noise, heavy equipment and permanent impact to the land and view even after the turbines life ends, the concrete foundations will be permanent fixtures and make so much of the land unreclaimable. The red lights and vibration will be a detriment to the area, not an asset. Plus the electrical generation will not even be used here. Let the communities that want the power construct electricity generation projects in there area and leave our hills alone	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - opposition	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1085702	This wind farm will be located upwind from my home. The risk of wildfires from the construction and operation of the windmills is too high. We had 7 houses lost due to a wildfire several years ago in Canyon Lakes, and fortunately no injuries. Furthermore, I cannot tolerate dust and pollutants these windmills will create. People with breathing problems will suffer.	Air Quality	The Horse Heaven project is not expected to be a source of wildfire risk.	4.3	n/a
			Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
Anonymous User	1085705	I am extremely concerned about this wind Turbine project as a member of the Kennewick community. I'm concerned about the impact on the environment and animal habitat. I'm concerned about the views of our beautiful Horse Heaven Hills. I'm concerned about how big and tall and close to our city and houses that these wind turbines will be. I'm concerned about the blinking red lights and potential change in environmental factors. Why can't these turbines be farther away from the city? There is plenty of empty land farther south of Tri Cities.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1085706	I generally support the proposed Horse Heaven Hills energy project. However, I would like to encourage EFSEC to require the following as part of mitigation. These are in no particular order as I was too tired to read the lengthy EIS. Fund the equipment to help dryland wheat farms do direct seeding and no-till farming. The dust is horrible and they have not been good stewards or seriously worked on dust control. The money that comes from this project could address that. If they don't have to be on the same sequence, please have the lights on the turbines blink randomly - There are places in the Gorge where they go on and off in a line - light then dark. It's really annoying. Avoid damaging intact shrub-steppe habitat and work around it when possible Replanting efforts should have a 3-5 year bond to ensure plant success. Use best available technology to limit bird and bat strikes. I recently heard black blades would be better for birds to see. Hopefully the data will be available in time for these. Require Scout to simultaneously fund an energy conservation campaign. We need to conserve the energy we have. Ensure Scout pays a fair price for land leases. The leases could help provide a stable income so farmers can keep farming in the face of climate impacts. Also, whatever role EFSEC has in the matter, it is time to remove the four lower Snake River dams to prevent ecocide and cultural genocide.	Air Quality	The Horse Heaven project is not expected to be a source of agricultural-related dust emissions. Property owners are responsible for controlling dust from their property according to the Washington Administrative Code 173-400-040 paragraph 9. Complaints regarding fugitive dust that does not comply with these provisions can be directed to the Benton County Clean Air Agency.	4.3	n/a
			Visual Aspects, Light and Glare	Comment about FAA lighting blink-timing noted.	4.10	n/a
			Vegetation	The Project has been designed to minimize impacts to shrub-steppe and to avoid where possible shrub-steppe habitat during the phases of the Project. Where shrub-steppe avoidance is not possible, mitigation for the impacts would be provided based on the as-built plan.	4.5.2.4	n/a
			Wildlife and Habitat	Painted turbine blades are currently prohibited by Federal Aviation Administration (FAA) regulations.	n/a	n/a
			Energy and Natural Resources	The Project's Energy Natural Resources Section of the EIS includes recommended mitigation measures that would reduce or compensate for impacts related to energy consumption during the Project's operations stage, such as the installation of high-efficiency electrical fixtures and appliances in the O&M facility, BESSs, substations, security lighting, and others.	4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Land and Shoreline Use	The Project would financially support ongoing agricultural ownership and operations via its lease agreements with participating landowners. The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). The Applicant has not made publicly available the value of its agreements with participating landowners.	4.8.1	n/a
Anonymous User	1085708	I strongly oppose the construction of this wind / solar project. The environmental impact far outweighs any benefit.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Your environmental concerns are covered in the analysis of the EIS and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1085709	Please consider painting one of the blades of each turbine black to reduce bird kill. https://electrek.co/2020/08/21/wind-turbines-bird-friendly-black-blade/	Wildlife and Habitat	Painted turbine blades are currently prohibited by Federal Aviation Administration (FAA) regulations.	n/a	n/a
Anonymous User	1085716	My utility provider, Benton PUD will be forced to buy this more expensive source of power, and has stated they will pass this on to the consumer as higher rates. I am paying more and getting less. Not only do I have to look at, and hear, these eyesores. I will now have to pay more for the "priviledge"	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Your financial concerns are covered in the analysis of the EIS (i.e. the proposed project's economic and social impacts is assessed in Chapter 4.16 Socioeconomics) and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor.	n/a	n/a
Anonymous User	1085872	Interesting that the faction that bellyaches about interference with property rights wants to interfere with farmland owners' right to use their land to both farm and produce clean energy. Could it be that the wind farm would slow the southward sprawl of oversized homes? The energy produced from wind would enhance our regional focus on energy that doesn't affect climate change. Our capable craft workforce would do a good job of building and supporting operation. Eventual opportunity from the storage capabilities resulting from PNNL's materials scientists will enhance the pairing of wind and Energy Northwest base load power.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1085961	I am concerned for our environment, the wildlife, and our community. The turbines will disrupt everything and I am worried about the impact the turbines will have to my friends and families health and wellbeing. I do not feel the turbines are in the best interest of our community. I do not support the turbines project.	Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures.	n/a	n/a
Anonymous User	1085966	Noise from wind turbines has been documented to have negative impacts on animal as well as human health. Scout Clean Energy should be required to submit a site plan showing the exact location of each turbine so that a noise study for each turbine can be performed. Turbines that produce negative impacts to nearby residents or wildlife should be relocated or removed prior to approval of the project. Particularly I noted that the conclusions in chapter 5 * Vegetation: Conclusion(a): The Proposed Action would meaningfully contribute to cumulative impacts on Priority Habitat and special status plant species. * Wildlife and habitat: Conclusion(a): The Proposed Action would meaningfully contribute to a cumulative impact on habitat loss and degradation, habitat loss for special status wildlife species, barriers to movement, and wildlife mortality.	Noise and Vibration	Windmill layouts for turbine option 1 and option 2 have been provided in Section 2 of the EIS and impacts on Noise and Vibration have been outlined in Section 4.11 of the EIS. The layouts are approximations as the Applicant is requesting the flexibility to site turbines anywhere within the micrositing corridor.	4.11	Additional figures or figure inserts showing NSR locations with maximum impacts and the closest noise source(s), has been requested.
			Vegetation	Table ES-5 indicates that the impact from the Proposed Action would not significantly directly or indirectly impact Priority Habitat; however it contributes to cumulative impacts.	Table ES-5	n/a
			Wildlife and Habitat	The potential for the Project to disturb wildlife resulting in indirect habitat loss is described in Section 4.6.2.2 of the EIS. Mitigation Measure Hab-5 has been recommended to create a framework for the Applicant to measure indirect habitat loss and develop adaptive management.	4.6.2.2	Mitigation Measure HAB-5 will be recommended to update to measure and manage indirect habitat loss.
Anonymous User	1085993	Strongly oppose due to environmental damage and unsightly views negatively affecting our quality of life and economics.	General - opposition	Thank you for your comment; your concerns have been noted. Your environmental and economic concerns are covered in the analysis of the EIS and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor. In addition.	n/a	n/a
Anonymous User	1086079	I am apposed to the wind turbine project in the Horse Heaven Hills as the noise from them have been shown to be harmful to humans and animals. Also the light pollution to the area would effect the quality of life of the people living in the surrounding area. I am also concerned that the preliminary studies that must be done before construction of the turbines can not be completed if there is no clear mapping of where the turbines shall be erected.	Noise and Vibration	Windmill layouts for turbine option 1 and option 2 have been provided in Section 2 of the EIS and impacts on Noise and Vibration have been outlined in Section 4.11 of the EIS. The layouts are approximations as the Applicant is requesting the flexibility to site turbines anywhere within the micrositing corridor.	4.11	Additional figures or figure inserts showing NSR locations with maximum impacts and the closest noise source(s), has been requested.
			Visual Aspects, Light and Glare	Comment noted. Impacts on Project lighting impacts on sky glow and light pollution are described in Section 4.10 of the EIS. The Project is not expected to be a significant source of "light pollution".	4.10	n/a
Anonymous User	1086095	I am very much against the Horse Heaven Wind Project. Not only will it ruin our natural beautiful hills, but I believe it will be environmentally damaging to our birds and animals that live there.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Your environmental concerns are covered in the analysis of the EIS and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor.	n/a	n/a
Anonymous User	1086167	I feel this project would be a great boon for the Tri-Cities and am in favor of it! We need to emphasize renewable energy sources -and this is a worthy project!	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1086189	Eyesore and milieu degeneration is a problem with these huge wind turbine farms, to a point that my opinion is that the Horse Heaven site shouldn't be approved. I'd like to mention that I've noticed that unlike other large structures such as transmission lines, dams, and large roadways that mar the milieu, the wind turbines are way worse because not only are they huge, environmentally disfiguring structures, THEY MOVE, which catches ones eye, and is fact about impossible to ignore; our eyes, of course, are attracted to things in our visual fields which stand out. Moving white blades of daylight and the flashing red lights of nighttime turbines are not helpful to driving safety-- I've encountered some which disturb my driving attention so much that my safety is significantly lessened. Thank you, Steve Fabian, Richland, WA.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1086213	We already have dams were not fully using and the damage has already been done there. I can see how wind energy can be a good thing in the right area but we simply don't need it here.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1086297	I am against putting windmills on the Horse Heaven Ridge or anywhere. Windmills are NOT VIABLE! That means they are NOT COST EFFECTIVE. The spent/used blades are useless, destroying perfectly good land. Hydro (water-powered) is the best renewable, viable, green energy there is. To destroy electricity-making dams is criminal! The windmills look like crosses (for all the wildlife that is killed?). The blinking lights at night are polluting the darkness.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - opposition	Thank you for your comment; your concerns have been noted. Your environmental and economic concerns are covered in the analysis of the EIS and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor.	n/a	n/a
Anonymous User	1086349	I am concerned about the cost to wildlife in the area of the massive wind turbines. Benton county is a major waterfowl flyway. It's proven that win turbines kill many birds over the days, months and years of operation.	Wildlife and Habitat	Bird collision with the turbines is considered in section 4.6.2.2 of the EIS.	4.6.2.2	n/a
jjsmas1	1086379	My first comment regards the visual impact of this project. I live in N Richland, some distance from the project; however, I have been walking the Columbia River path in Leslie Groves and Howard Amon Parks for over 30 years and have been viewing the Horse Heaven hills from the elevated points of the walking path, where I am approaching the dike and along the dike. That has always been an enjoyable high point of my walking experience, to take in the views of the Horse Heavens from those vantage points. My concern and my opposition to this project is based on the fact that the wind turbines will dominate that view and significantly diminish the natural beauty in that view. My second comment and point of opposition is based on the fact that this project would not be possible without heavy subsidizing from the tax payers. I am opposed to these subsidies.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
rwurdeman	1086630	Not at all in favor of this ugly project. Where will the electricity be going too. Will my power bill be going down. Too many workers and where will they find adequate housing in a cumunity that is already being pushed to the brink. Current Infrastructure will not accomodate increased traffic. Ugly sight on rugged hillsides. Will decimate the bird population. Disposal of these components will pollute the environment.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Socioeconomics	Analysis of housing demonstrated that vacant housing exists throughout the study area and nearby communities, and the nearby communities maintain substantial short term rental options that include hotels, motels, campgrounds, and recreational vehicle parks. Adverse impacts would occur if a reduction in short term and long-term rentals reduces supply enough that it causes an increase in rental prices. Given that most construction workers would be sourced locally and the abundant supply of short term and long-term rentals throughout the study area, the analysis determined that the Project would not result in adverse impacts on housing.	4.16.2	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1086634	The massive area selected for the wind turbines and solar fields is geographical as wider east to west than the Tricities. With over 200 turbines of which many, or most are 500 feet tall. What a blight to our views they will be. Additionally, our electric rates will increase dramatically due to the cost of the wind turbines.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Your environmental, decommissioning, and economic concerns are covered in the analysis of the EIS and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor.	n/a	n/a
Anonymous User	1087029	This will create such an eye sore. This is an area that is seeing significant growth and this land should be developed into businesses that can actually help boost the economy and support urban expansion.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Mycomments*2023	1087093	I am opposed to the windfarm due to the threat to wildlife, part of this area is called goose gap for a reason. I am opposed also because of the dirt and dust hazzrds this project will add to people living down wind. I am opposed because we need to protect our Ridgeline views and finally I am opposed because there is no extra water to use for this project and water should not come from kennewick, KID nor aquifer.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	3.4.1.5 and Section 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
Anonymous User	1087287	Dear Council, I write to commend this council on the thorough analysis included in the DEIS for the Horse Heaven Clean Energy Center and recommend the project's approval. This review is based in a factual and scientific methodology, a forthright accounting of how the project will impact the environment and surrounding communities, and clear mitigation measures that avoid and minimize the most significant potential impacts. This impartial, science-based approach is needed, particularly considering many of the emotional and inaccurate appeals that have been made about the project. In serving on Benton City Council, I've been privy to some of the discussion surrounding this project, including points raised about visual impacts, and opinions about how private landowners should exercise their private property rights. It is true that individuals may have a difference in opinion about what our region's landscape ought to look like. It's also true that wind turbines are prominent features which will be seen by many and may illicit varied reactions. What has been lost in this discussion, however, is an appreciation of private property rights – a value that is typically held dear by many in this community. The proposed project was deemed to have land use consistency. Now, the DEIS has identified strategies for reducing and alleviating the project's most significant impacts. This includes the restriction of turbines within proximity of non-participating residents and critical viewpoints. Opinions may vary on this project, and on the issue of views, but we ought to be very careful when it comes to telling private property owners what they can and cannot do on their lands, outside of the existing regulatory review process. Sincerely, Jessica Wadsworth	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1087445	I will be directly impacted by the wind farm due to the location of my home, however the entire Tri Cities will be directly impacted way more than they expect. I oppose the wind farm vehemently. The proven physical and mental health hazards are at the center of my objection. The pulsation, blinking red lights, the increased fugitive dust, possibly chemical laden with herbicides, and the steady hum, are all proven to have a negative impact on health, both human and animal. Thousands of birds will be killed. No land owner or wind farm which is an industrial manufacturer of energy should be allowed to infringe on the wellbeing of another. This is 72,000 acres that is all near 308,000 people!!! Central Washington is a vast area where no one lives. That is far better suited for this wind farm if it must be built. Good health is our single most valuable possession. To infringe on that for ANY reason is unfathomable, and this is pure greed.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
Anonymous User	1087489	The Horse Heaven Clean Energy Center underscores the significant economic opportunity of building out Washington state's clean energy future. As a life-long resident of Washington State I fully support this project. The project will help advance the state's ambitious climate goals while creating a substantial number of family-wage jobs and economic activity in Benton and Franklin Counties. Developing the project's hybrid combination of wind, solar, and battery storage applications will create as many as 930 jobs for skilled construction workers. Through building local access roads and foundations to support the technology, the project will employ crane operators, electricians and skilled laborers. The project will be a significant source of employment in the local area. The jobs required by this project are high-paying, family-wage opportunities. Economic impact studies examining the project estimated the typical income per worker during the construction phase to be $113,500. That's nearly 60% higher than the average regional compensation across industries and 37% higher than the compensation in the construction industry for Benton and Franklin Counties. The studies also showed that at full build-out, the project could amount to at least $73 million in labor income and $143 million in total economic output. Following construction, the project will also create a combined direct, indirect and induced total of 56 long-term high-paying jobs during its estimated 30-year life span. While the project brings clear and substantial benefits to families and workers in the local area, it will also help advance Washington state's broader clean energy economy. The project will keep workers busy in our Ports and shipping industry as the turbine parts make their way to the Tri-Cities. It will also drive further investments in new and existing workforce development and educational programs to prepare students for careers in the growing renewable energy sector. Such programs already exist at Walla Walla Community College, Bellingham Technical College, and Centralia College, all of which will increasingly important as these projects continue to move forward. I urge EFSEC to advance this project to take advantage of these clear opportunities. Thank you for your consideration, Bob Zappone	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1087573	We don't believe the wind farm will provide enough energy at the times the extra electricity is needed to justify the cost to install the windmills or the disturbance to the growth of the City of Kennewick. Kennewick is growing and can only grow to the south where the windmills if installed will severely restrict the growth. The noise and lights of the towers as well as the view from the area will be very objectionable. There doesn't appear to be a plan in place to demolish and remove the windmills at the end of their lifecycle which is another real problem.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Your environmental, decommissioning, and economic concerns are covered in the analysis of the EIS and would be considered by EFSEC to determine its recommendation of the proposed project to the Governor.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1087856	I am COMPLETELY AGAINST THE HORSE HEAVEN HILLS WIND TURBINE FARM!! Scout Energy has no reguard for the objections of the People of Kennewick and surrounding cities and neither does our Governor Inslee!! Scout will be tearing up a designated wine appellation with some of the best agriculture land in Wa. State and completely destroy a newly developed area for our pronghorned antelope that are close to extinction!! DO NOT BUILD THIS MONSTER FARMS!!!!!	Land and Shoreline Use	The 72,428-acre Lease Boundary equates to approximately 6.5 percent of Benton County's territory and 11 percent of the land use designation "GMA Agriculture." The ASC indicates that Turbine Option 1 would involve more land disturbance than Turbine Option 2. The Project's total land disturbance of 6,869 acres under Turbine Option 1 is equal to approximately 1 percent of Benton County's lands designated as GMA Agriculture and 0.6 percent of the county's total territory. A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.	3.8.1.1	
Anonymous User	1087942	I find the High visual impact rates for the Tri-City area and the High impact to the Flyway for Birds to be a major problem for this project. I wish to appose it's construction	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1087990	I don't want to see this happen! 1) Those things ruin the beautiful skyline that so many enjoy. 2) They do not produce enough power and are not a good replacement for ANY energy source. 3) They do have to be maintained by oil! The blades do have to be replaced leaving old ones to be dumped. WHERE?! They are huge! 4) They highly affect nature! Many birds have been killed by these monstrosities! https://www.smithsonianmag.com/smart-news/how-many-birds-do-wind-turbines-really-kill-180948154/ https://www.birdwatchingdaily.com/news/conservation/new-study-estimates-573000-birds-died-at-wind-farms-last-year/ 5)This can affect farming and grazing along with possible growth in housing there. Idaho is also as concerned as we should be. https://www.kivitv.com/ksaw/locals-raise-opposition-to-wind-energy-project-as-environmental-impact-statement-release-looms 6) I am unsure who would actually get what energy comes from them. I do know that Idaho Falls put them up on their mountainside, very ugly, and every bit of that energy is being sent to CA! So CA is gonna start putting these everywhere they can and destroy everyone else's states with these to try to benefit themselves. That is not good! https://dailycaller.com/2023/01/09/real-concern-locals-tear-idaho-wind-project/ Also, the absurdity of stopping gas stoves is just that, absurd! Just saying! Someone needs to defend our rights for once!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Wildlife and Habitat	Bird collision with the turbines is considered in section 4.6.2.2 of the EIS.	4.6.2.2	n/a
Anonymous User	1088598	We are in FULL support of the proposed project to help bolster renewable infrastructure and provide reliable power to the grid.	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1088618	I am against any more wind or solar farms in our Tri City area. Already on a clear day you can see the ugliness of those on the hills around the valley. At night all one sees are blinking red lights. Birds are killed by them including protected birds like our Bald Eagles. Windmills are not environmentally safe - they use gallons of oil during their lifetime, as we saw a couple summers ago they can start wildfires, there is no recycle program for the blades. Plus, most are made in China not the USA.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Bird collision with the turbines is considered in section 4.6.2.2 of the EIS.	4.6.2.2	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a
Dean Nester	1088673	My comments/concerns are written up in the attached PDF file. Respectfully, Dean Nester West Richland, WA 99353	Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project. The visual impacts to recreation sites have been determined to be "High" with a finding of "Significant Impact".	4.12	n/a
			Visual Aspects, Light and Glare	Comment noted. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	None of the turbines ID-ed for removal in this comment were removed in the DR from the Applicant.
Mike Minelli	1088697	pls see attached	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Please note, under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
Anonymous User	1088704	With Family members who share the direct view & have grave concerns about the environmental impact, so much so they packed up their entire house and planned on moving, I make a plea for ONLY SOLAR power generating structures be put on these lands vs the negitively impactful wind turbines. Please do not put these in the proposed location.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1088901	I am ABSOLUTELY against wind turbins! Not just in my area but ANYWHERE! They are an eye sore, bad for animals and birds especially, and not environmentally friendly. I HATE THEM! Those people who promote them has $$ to gain from them and that is all they care about.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1088940	I don't see a direct benefit to these monstrous structures (windmills). The energy they develop will not benefit the local population but instead bring many adverse impacts ie; sound, concerns impacts to animal and bird populations to say nothing about the ugliness cast upon God's landscape beauty.	Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1088945	Please address the following issues regarding the proposed Horse Heaven wind project (HHWP). 1. I live approximately 1 mile North of the proposed turbines and witness first hand almost year round thousands of birds flying directly into the path of the proposed turbines. See link to pictures. https://photos.app.goo.gl/Nw1mcseTU3zFSaTB8 All but one picture I posted is from the same time and spot looking different directions. The groups of birds stretched as far as I could see in every direction. Is EFSEC aware of this? Who will be responsible when many birds are injured or killed by the turbine blades? 2. Quite often there are a pair of owls hooting on roof tops at night. I have seen them or another pair nesting in the canyon in the proposed turbine area. 3. I also see many hawks in this area. Is EFSEC OK with killing or driving them off as well? 2. There are several houses nearby and more being built at this time. This is a housing growth area to the south of town. Please explain why the EFSEC committee would subject our Horse Heaven (proposed turbine hell) community to: a.) Low frequency sound, B.) light flicker during the day, C.) stirring up dust from the nearby dry wheat fields. D.) Light noise. My hot tub and general view is of the Horse Heaven area and the marker lights would ruin our serene natural landscape. 3. According to Western Power Pool Western Resource Adequacy Program the massive HHWP 850 megawatt project would only have 8% effective power, equaling only 68 megawatts of effective power that is generated at a time when it is not needed. Please see the attached slides and explain the benefit of this project. LInk to Western Power Pool Western Resource Adequacy Program: https://www.westernpowerpool.org/about/programs/western-resource-adequacy-program Thank you. D. Brent & Karen Strecker	Wildlife and Habitat	Information on bird movements over the Lease Boundary was provided in the Application and is summarized in Section 3.6 of the EIS. This information was used to calculate the species specific exposure index to assess the potential bird collision impacts of the Project. These are described in Section 4.6.2.2 of the EIS. The Applicant would be responsible for conducting two years of post-construction bird and bat fatality monitoring. The results of the monitoring program would be used to inform whether additional mitigation measures and monitoring are required as part of an adaptive management program (See recommended mitigation Wild-1). Impacts to raptors (owls and hawks) are discussed in Section 4.6 of the EIS. Proposed mitigation measures include an evaluation of indirect wildlife habitat loss (e.g. through sensory disturbance) that could reduce habitat function adjacent to Project components is discussed in mitigation measure Hab-5.	4.6.2.2	Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.
			Visual Aspects, Light and Glare	Comment noted. Impacts from shadow flicker and lighting are described in Section 4.10 of the EIS. The Project is not expected to be a significant source of shadow flicker, increase sky glow, nor be a source of light trespass. Lighting will be visible at off-site locations.	4.10	n/a
			Noise and Vibration	The project is not expected to be a source of "Low frequency sound" at levels that would impact humans or structures.	4.11 (LFN)	Low frequency noise to be directly addressed in the FEIS.
			General - opposition	Thank you for your comment; your concerns and observations have been noted. Economic impact analysis (Appendix 4.16-1) has been completed to determine potential socioeconomic impact on the local communities.	n/a	n/a
Anonymous User	1089167	These many monstrously large windmill towers (higher than the space needle) will destroy the beauty of the surrounding area. They will also decimate the raptor population such as the recovering eagle population. And who knows how loar or visually disturbing the spinning blades will be? There are plenty of other less controversial or intrusive ways to get green energy such nuclear power.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1089470	You haven't given a designated area for EACH turbine; therefore no noise study can be performed. We know the noise factor is a problem to health for human and animals. Lack of sleep due to the noise can cause major health problems for citizens. The AM is horrible to citizens. The rotation is a death threat for birds. Some animals are injured to the loss of sight regarding vibration of these turbines. And we know chickens quit laying eggs due to them. Any lights attached to them are a problem for all residents that can view these turbines. Infra-sound is detrimental to our health. Vibrations can cause pressure pulsations to liquid tanks. These turbines are to do away with alternative energy products, but they MUST have gas and oil to run. Then sometimes they have come apart and slung the blade where someone could get hurt. There is no way to recycle blades. The blades are not USA made - China benefits which is against most USA citizens. William Acker, Energy Engineer states the dangers of the turbines. I realize the land owners will benefit greatly money-wise, but neglecting the citizens surrounding these turbines MUST be a factor to consider. The electricity they will produce will be probably be sent to Seattle or California. No good reason to put them here. AND - truck traffic, the dust factor, the fire danger, what water will you use for construction and to put out fires, are they too tall, blades too flashing, too close together, too many, flashing lights, animal injury and death, etc. are all problems. Therefore: Submit a site plan for exact location for each. Do a 360 degree 6 month noise study for each turbine. Any turbine that produce detrimental noise to citizens or animals must be removed for your plan. Thank you. Louetta Shiplet 2704 W Old Inland Empire Hwy Benton City, WA 99320	Noise and Vibration	Windmill layouts for turbine option 1 and option 2 have been provided in Section 2 of the EIS and impacts on Noise and Vibration have been outlined in Section 4.11 of the EIS. The layouts are approximations as the Applicant is requesting the flexibility to site turbines anywhere within the micrositing corridor. The project is not expected to be a source of "infra- sound" at levels that would impact humans or structures.	4.11 (LFN)	Additional figures or figure inserts showing NSR locations with maximum impacts and the closest noise source(s), has been requested. Low frequency noise to be directly addressed in the FEIS.
			Wildlife and Habitat	Section 4.6.2.2 of the EIS provides an analysis of the potential indirect habitat loss (e.g. sensory disturbance) to wildlife from the Project. These areas were calculated based on the general micrositing corridor that will encompass the turbine locations.	4.6.2.2	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations.	4.10	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
Anonymous User	1089521	Information seems to be totally lacking as to why these sites have been selected over all others. Why only here?	General - opposition	A majority of the site is privately owned by the Applicant, Horse Heaven Wind Farm, LLC. Scout Clean Energy LLC (Scout) is the indirect owner of 100 percent of the Project. Scout intends to build, own, and operate the Project and therefore, the Proposed Project has been proposed for this site. Project location is selected based on several factors including but not limited to viable above-average wind speeds in the area, sufficient flat area and solar irradiance to site solar PV panel, proximity to existing transmission lines and wiliness of to participate in the Project.	n/a	n/a
Anonymous User	1089592	This project will ruin and overwhelm the beautiful landscape that make the Tri-Cities a special place to live. It needs to be moved closer to the Washington population that requires it. Other clean energy alternatives are available, for example, small modular reactors. They could easily be placed near metropolitan areas where the demand is higher. The organization involved in placing so many wind turbines main goal is financial gain. Please consider an alternate area or smaller number of turbines for this project that does not overwhelm the Tri-City landscape.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. The Proposed Project would consider a reduction in turbines as noted under Option 2 (per Chapter 2, Proposed Action and Alternatives) as a result of the evaluation of impacts. The EIS does note that fewer turbines and solar arrays may be constructed for the Project and still allow for the achievement of the nameplate generating capacity. In addition, EFSEC would review the aesthetic analyses completed for the Project and consider the impacts on local communities.	n/a	n/a
Anonymous User	1089601	We are one of many families that are building homes within 1-2 miles of many of the proposed windmills just south of Kennewick. In the report, there is not much mention of noise from the windmills or the vibrations these will cause. Especially due to the size of the proposed windmills. There are many health effects that must be considered. It' seems irresponsible to place windmills that are the size of the Space Needle within a couple miles of homes and businesses. You are potentially ruining our beautiful horse heaven skyline and impacting the physical health of thousands of Benton County residents. Why? There is so much room, in so many places that are more rural. Please do not do this Please review this case study https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653647/	Noise and Vibration	Noise and vibration impacts are addressed in Section 4.11 of the EIS and are not expected to cause impacts detrimental to human health from noise or vibration.	4.11	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1089602	https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3653647/	Public Health and Safety	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1089638	This is in opposition of the Horse Heaven Wind Farm. In Benton County, we already have the ability to harness energy through nuclear and hydroelectric power. In this area, harnessing a mere 27% of wind power is not a significant amount of energy considering all of the documented negative impacts the turbines may have to our local environment. It is proven that wind turbines have a negative effect on animals and human health, along with creating an undesirable visual landscape. The cost to develop a local windfarm does not appear to be cost efficient when we have two other sources of energy currently in our backyard.	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS	n/a	n/a
Anonymous User	1089663	If the wind turbines must go ahead, they need to be at least 2 miles from residential structures, specifically non-participating community members. There are multiple studies that show large turbines cause auditory and psychological health risks to nearby residence.	Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures.	n/a	n/a
Anonymous User	1089668	The size and density of the proposed wind turbines is far too great. I'm not sure if this will positivity impact my rual neighbors in badger canyon. We kivr in a rural area for a reason. Wind turbines is not one of them.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS	n/a	n/a
Anonymous User	1089697	EFSEC DISCOURAGES PUBLIC INPUT FOR HORSE HEAVEN PROJECT BUT NOT GOLDENDALE ENERGY STORAGE? Goldendale 64 days of public comment. Horse Heaven 30 days during 6 major holidays (Christmas Eve, Christmas Day, New Years Eve, New Year's Day, Hanukkah, Holiday State Days, MLK. Later after public pressure, 15 days were added. DOES THIS ENCOURAGE OR DISCOURAGE PUBLIC INPUT? THREE public input occasions for the Goldendale project plus media, email and social media communication HHH Project...ONE phone meeting - in March 2021. Audio and access was very difficult for some and impossible for others. EFSEC Senior Management has openly recognized it. PUBLIC INPUT ENCOURAGED? Car Tour of HH Project EFSEC led by "Scout". The public was invited but asked by senior management Not To Speak. PUBLIC INPUT DISCOURAGED? Wautoma Solar Project Town Hall was A Face to Face meeting which included EFSEC members in the Tri Cities and meeting at Columbia Basin College. No public meetings are scheduled for Horse Heaven Project? Is this fair? IT LOOKS LIKE PUBLIC INPUT WAS NOT ENCOURAGED....AND IT'S NOT A GOOD LOOK. The Spirit of SEPA as written is a fair process. It encourages public input with a fact based approach. However In practice SEPA becomes a whole lot of words about nothing. It's too bad. The actions mentioned above clearly shows EFSEC is a Siting Approval Process. MPMinelli	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Please note, under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
Anonymous User	1089781	I am opposed to the Horse Heaven Wind Farm Project for a number of reasons: adverse impacts to wildlife visual impact to nearby residents adverse impacts to property values adverse impacts of oil spills when turbines fail adverse impacts of disposal of blades that have a limited life	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	Wind farms are not anticipated to negatively impact the property values of agricultural properties that host wind turbines. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Public Health and Safety	Impacts of the Project resulting from hazardous materials use and storage are discussed in Section 4.13.2 of the EIS. The applicant has committed to developing and implementing a SPCC Plan to address potential spills during Project Operations, as noted in Section 4.13.2.4 of the EIS.	n/a	n/a
Anonymous User	1089797	Consideration should be given to moving the wind farm further away from the city limits and closer to the Columbia River. There is a significant amount of open land between the Tri-Cities and Umatilla. Having the wind farm in an area less visible to Tri-City residents would mitigate the problem of unsightly turbines impacting residents while still allowing the project to go forward.	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1089949	Is Scout Energy and the State of Washington prepared to be sued by people who have their hearing impaired by wind turbines? If these turbines and their vibrations are damaging the eardrums of whales in the Atlantic Ocean what do you think will happen in the Tri Cities? These turbines are too close to the city. These turbines will destroy flight patterns of birds and will drive native fauna out of the area. Just say NO!	Noise and Vibration	Noise and vibration impacts are addressed in Section 4.11 of the EIS and are not expected to cause impacts detrimental to human health from noise or vibration.	4.11	n/a
			Wildlife and Habitat	Impacts to wildlife, including an assessment of potential wildlife mortality and indirect habitat loss, are addressed in section 4.6 of the EIS.	4.6	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
cbartram45	1089980	EFSEC should disapprove this project due to its proximity to a metropolitan area or downscale the project to reduce the visual and environmental impact to the Tri Cities area. Having such a large project located so closely to a metropolitan area is a terrible precedent. This project has no benefit to residents living within the area. None of the local utilities or residents will receive the energy from this project. At a minimum, the turbines should be downsized in number and in height, and require the project to utilize systems approved by the the Federal Aviation Administration that detect aircraft radar and turn on only when planes are flying low in the vicinity.	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the Final EIS
Anonymous User	1090013	Can't believe what you're letting these Liberal West siders get away with , going to be an eyesore just like Souther California , if you want this in your back yard . Why don't you just move down there	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1090026	Why only here?	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1090049	I oppose the proposed wind farm in Benton County.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1090085	Hello, My family and I are residents of the Badger Canyon area in Benton City, Washington. We moved to this area for its natural beauty and the breath taking views of the Horse Heaven Hills. There are also many wonderful bird species in this area. Wind Turbines are not a natural part of any environment. If the proposed wind turbines are built across the Horse Heaven Hills, what was once a beautiful natural landscape, will turn into an industrial eyesore. Not to mention the animal impact. It has been proven that in its lifetime, a single wind turbine can kill hundreds of birds and bats. Not just local birds, but also migrating birds. If rural communities are to preserve the natural aesthetics of an area, and preserve bird and bat populations to keep the environment in balance, wind turbines must not be built. If wind turbines must be built, they should be built away from human populations, to preserve the natural ecology of those areas as much as possible. Imagine if 500' tall oil drilling rigs were to be built in this location. It would be obscene. Why then would any energy corporation push 500' tall wind turbines on a local community? We love our environment as much as anyone, and desire more green energy. But green energy must not come at such a cost to any community. We hope you can take these comments into consideration. Please reach out to me if you would like a longer statement, or a public reading of the statement. Respectfully, Grant Nelson grant250@live.com 425-890-1144	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1090190	I support the development of the Horse Heaven Clean Energy project. We need to develop non-carbon sources of energy whenever feasible to address climate change	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1090217	I am opposed to the Horse Heaven Hills Wind Turbine Project. I believe it will have a negative impact on birds, ground wildlife, and human residents in the area. I also have concerns about the impact that getting the raw materials necessary for the batteries and the construction of the turbines themselves will have in other parts of the world. Also, there is no good plan in place for how to deal with turbines and batteries years later after they are useless.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1090236	We need a hearing A other complaint is they have not done adverse testing on each proposed wind turbine, they have not even given exact location of each turbine. We need testing as to the affects on people health, noise and dust studies or killing wild birds, animals and environment! Lights, noise, dust and killing protected animals! Birds antelope breeding grounds. Latest is the deaths of Whales off the east coast! No noise studies were done to protect the whales, birds or people. Here it is not only flashing lights increased, land temperature, pollution of the land as each unit requires 80 gallons of oil to be changed out every 3 months that is known to leak into the soil, massive water needs in a dessert. The fact that the fiberglass blades are not recyclable and massive blades have to be buried in landfills. Each unit only lasts 20 yrs and costs almost 1 million dollars to replace. New infrastructure has to be laid to transport this massively expensive power to where it is needed. This is all charged to the taxpayer either federal or local! --	Noise and Vibration	Windmill layouts for turbine option 1 and option 2 have been provided in Section 2 of the EIS and impacts on Noise and Vibration have been outlined in Section 4.11 of the EIS. The layouts are approximations as the Applicant is requesting the flexibility to site turbines anywhere within the micrositing corridor.	4.11	Additional figures or figure inserts showing NSR locations with maximum impacts and the closest noise source(s), has been requested.
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations.	4.10	n/a
			Public Health and Safety	The ASC states that 5 gallons of lubricating oil will be needed for each turbine per year. Oil would be brought in, and waste oil would be removed using by a maintenance contractor using a specialized vehicle. Impacts of the Project resulting from hazardous materials use and storage are discussed in Section 4.13.2 of the EIS. The applicant has committed to developing and implementing a SPCC Plan to address potential spills during Project Operations, as noted in Section 4.13.2.4 of the EIS. Impacts associated with fugitive dust are discussed in Section 4.3.2.1 of the EIS. The applicant has committed to several fugitive dust minimization measures that are outline in section 4.3.2.4 of the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1090245	Please support clean energy projects in Washington. Thank you!	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1090506	I support the completion of this project and find, with maybe two or three exceptions, the arguments against this project to be irrelevant. Most of the proponents of these arguments see this project as a threat to their current and future significant financial profits. So they have formed organizations with names that hide their greed in order to lobby against this project.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1090663	I am submitting my comments in regard to the Visual Aspects, Light and Glare mitigation measures in the DEIS. VIS-1 states to relocate turbines located within the foreground distance zone (0 to 0.5 miles) of non-participating residences to avoid completely dominating views from these highly sensitive viewing locations. Comment: I would like an analysis performed of the possibility of locating the project further south in unincorporated Benton County beyond the current southern border of the project to eliminate all potential for the turbines to be viewable by all non-participating residences.	Visual Aspects, Light and Glare	Comment regarding VIS-1 noted. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources. Comment regarding SF-1 and SF-2 noted. The complaint "hot line" was recommended to operate up to one year after completion of all turbines. LIG-1 comment noted and additional mitigation measure recommendation will be considered.	4.10.2.4 Lighting	Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the Final EIS
			Noise and Vibration	Details of the complaint resolution procedure have not yet been formalized. The hotline is to remain active until 1 year after the completion of the project. Daytime hours are set by the state regulation (WAC 463-60-352) as 7 a.m. to 10 p.m.	4.11	n/a
Anonymous User	1090729	The proposed Wind Turbine project will have a major impact on our communities. It appears to be larger than Kennewick, Pasco, Richland, West Richland and Benton City. This will have a major negative impact on our cities. The development will over ride the scenic beauty of our area, and will threaten various species that live in the area.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1090741	I am concerned with the long lasting impact on our views which will be impacted by the massive wind turbines to be placed adjacent to our cities. The attached demonstrates what the view from Southridge in Kennewick.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. Visual simulations, based on project engineering design, are included in Appendix 3.10-2.	4.10	n/a
Anonymous User	1090789	The proposed horse heaven wind farm project will devastate the view shed of the entire TriCities area as well as have major impacts to wildlife. The EIS is a masterful tome that no one will, or can read without being paid to so. The only real benefit of this EIS was to employ dozens of people for a couple of years to cut and past a bunch of boilerplate B.S. I know. I used to be one of them. They do a fine job of admitting there will be lasting impacts to wildlife and plant communities. I've worked in the field of habitat restoration and can tell you it is impossible to restore native plant communities in our desert environment. You can try to plant a half dozen or so species but you can never restore a complete native community. There are no seeds available for 90% of the grasses and forbs that live on those ridge tops. As for impacts to wildlife, they try to say impacts will be minimal and no more impacting than another wind farm east of the TriCities. They don't mention the cumulative effects of all these wind farms. This wind farm is in the main fly way for sand hill cranes and all waterfowl flying between the Umatilla wildlife refuge and the Columbia river in the TriCities, and the Columbia basin. It will have major impacts to the migratory silver hair and hoary bats, whose populations are already in decline. There are some mitigation measures that can be employed to reduce impacts to bats, such as curtailing operations when the wind is less than 6 mph. I did not find any mention of this in the Tome. If allowed to go forth, this should be a required minimum mitigation measure. Most greedy wind farm projects don't employ any bat mitigation measures because it might cost them a nickel or two. There will also be impacts to all the local raptors. This is one of the last places in the state that has ferruginous hawks. These people claim there will be minimal impact. If you take out the last one, that is not minimal impact. What are you going to say when some of these species become extinct? Sorry about that? That doesn't cut it! Finally, the impact to the viewshed of the TriCities will be monumental, as admitted in the tome. If this project was proposed for the west side of the state within the viewshed of 200,000 people it would never get off the ground. Please do not allow this project to go forward.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Vegetation	The Project is sites in an area that has been historically altered due to agriculture. Some native habitats remain and Project components have been sited to avoid these areas where possible. Where avoidance is not possible, mitigation is proposed. The revegetation plan proposes the use of planting with native plant species following temporary disturbance. Cumulative impacts to vegetation are addressed in Table ES-5.	Section 3.5, 4.5, Table ES-5	n/a
			Cumulative Effects	Cumulative impacts are the combined result of incremental direct and indirect impacts on resources from a project or plan, past and present actions, and other reasonably foreseeable developments (RFDs). Table 5-1 provides a summary of existing projects and RFDs geographically and temporally relevant to the Proposed Action, their characteristics, and potential resources susceptible for being cumulatively impacted. Table 5-2 provides an analysis of impacts from the Project and cumulative impacts from the Proposed Action and past and present actions and RFDs.	Section 5.2	n/a
			Wildlife and Habitat	Mitigation measures recommended by EFSEC to reduce impacts to wildlife are discussed in section 4.6.2.5 of the EIS. Specifically, Measure Wild-1 has been developed to require the Applicant review the results of the two-year bird and bat post-construction fatality monitoring program with EFSEC and WDFW to determine if additional mitigation measures are required. This mitigation measure will be updated in the final EIS to provide additional clericity to the intended scope and steps to achieve this mitigation. Wild-1 will read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]), curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities. The EIS provides a rating of the potential operational project impacts on ferruginous hawks and other special status species in Table 4.6-11b. This table assesses the magnitude of the potential impacts from the turbines and project as a whole on ferruginous hawk as high given the potential impacts to the local population from collisions. Mitigation measure Spec-5 has been developed to address impacts to ferruginous hawk by requiring the Applicant to site infrastructure outside of ferruginous hawk core habitat and provide a management plan identifying specific mitigation measures, such as curtailment, in the event avoidance cannot be achieved. Rationale for placing infrastructure in core ferruginous hawk habitat as well as mitigation measures would be reviewed by the TAC and approved by EFSEC.	4.6.2.5, Table 4.6-11b	Mitigation measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.
Anonymous User	1090842	I have lived around windmill power generating farms and Solar stations for fifty years in California and Washington. I have an Engineering background and have noticed that the windmills are both detrimental to the enviornment and to the animals and people who live in the project areas. The migratory patterns have been changed due to the wind farm near Finley, WA. After talking with people at WFWL they have produced documents outlining the damage done to endangered animals. My house looks right down HW395 and all that I will see is the large ugly turbines and the flashing red lights. These turbines are the most uneconomical pieces of equipment as they are jigh maintenance and are a contaminater of the soil and only operate about 30 percent of the time. In our area we don't need additional power as we have excess nuclear and hydro power. The ugly wind farm will ruin the scrub step which has been protected at the Hanford Site. There will be soil. Contamination and dust storms and occasional dust storms that will cause health problems for those who live in the shadow of the project area. And on a foggy dusty or snowy day, an airliner will eventually hit one of these high windmills	Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Vegetation	The impacts to shrub-steppe ecosystems are discussed in the EIS. The Project has been sited to the extent practical on previously disturbed land from agriculture. Applicant commitments include avoiding disturbance to shrub-steppe where possible and in avoidance is not possible to provide mitigation. Recommended Mitigation Measures include the requirement for an As-Built Plan that would provide final calculations on shrub-steppe for mitigation.	Section 4.5	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
ggraves13	1090863	The project is driven by political agendas without scientific data to support this project. It is detrimental to the shrub steppe, federally and state protected birds, it will raise local temperatures by 4 degrees annually (per Harvard and other studies world wide) effecting our food supply nationally and locally, Tricitiy agriculture and economically and it will effect the local wine economy. Our federal tax dollars will be sent to overseas investors where in their own countries are dismantling existing turbine farms or banning them all together because of the environmental devastation and no-energy benefit. The buyers of the tax credits will benefit corporately at the tax payers cost. The setting is in the middle of the Pacific Flyway with studies supporting the devastation of our own and global bird population. The Lewis and Clark Trail, federally protected, will be negatively impacted. The dry wheat land during construction will create another "down winder" effect on the local population by stirring up the herbicides and pesticides used in dry farming. On the scientific and transparent communication side the information provided has been not forthcoming on the data, the time lines, the public communication. Example Scout Energy has not provided an "accurate map" of the turbines implementation. Just a map with with turbines planted here and there. Over 100,000 of our Tricity population from Kiona Benton City, Badger Canyon, Kennewick and Finley live within 6 miles of the wind farm. The largest and closest to people effecting their health during construction and after implementation. Regarding employment this is a beginning and end project with out of state employees that are transient going from one job to another. Leaving a few maintenance people rotating in and out of territories assigned them. This has been misleading information regarding employment in our Tricity area. In conclusion this is a tax subsidy inspired project that will devastate the wild life in our area, raise temperatures that will demolish our contribution to our nations food supply and ruin our local economy. It will raise pricies on food and energy. Not create energy or jobs. And commit an unmentionable blow to the environment and wild life locally and globally. I have submitted an on-line petition of 1, 126 (as of this date 1/18) from local and international people that support local control of their environment and are against the devastation of turbine wind farms and against this specific project. I will be mailing the document as well.	Vegetation	The EIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Public Health and Safety	The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. An evaluation of down winder effects resulting from the Project will be added to the FEIS.	4.13.2	Provide evaluation of "down winder" effects resulting from Project construction, operations, and decommissioning.
Anonymous User	1090920	The dramatic negative effect on the existing sweeping desert views needs to be taken into acount.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Kathy Dechter	1090923	I am writing to protest Scout Energies' building a plethora of wind turbines along the Horse Heaven Hills. Of course they will be unsightly (read ugly—ala HG Wells' science fiction novels). Far worse, they will pose a potential deathtrap to our wildlife, especially birds. The only entity who will benefit is Scout Energy. Do NOT let this happen! Kathy Dechter	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1091052	I am against the project. The skyline vista will be destroyed by the installation of the wind machines. Birds will also be killed.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. The EIS does assess the visual impacts of the Proposed Project as well as the impacts on wildlife. EFSEC would consider these impacts in their recommendation of the Project to the Governor.	n/a	n/a
BethG	1091131	I support the project though I think it should be built further south. I am not concerned about the view. I am concerned that if they are too close to town it will retard the growth of our city (Kennewick). No one will want to build beneath them or in any close vicinity. We're hemmed in by the Columbia River to the north and these windmills would block off all other directions. Rethink the location.	Chapter 1 - Project Background	Section 5.2.2 provides additional analysis for the resource topics evaluated in the EIS that would be subject to meaningful cumulative impacts from the Proposed Action within the defined spatial and temporal setting. Section 5.2.2 also includes an analysis of the No Action Alternative.	Section 5.2.2	n/a
Anonymous User	1091358	Please don't allow this wind farm to be created so close to our beautiful Tri Cities. Among other reasons, they are unsightly and ruin our beautiful view from our homes and places we recreate. They will harm our unique tourism industry based on the unspoiled beauty and serenity of our local lands. They represent a fire danger to our homes and in light of current global climate change and worsening wild fires, it would be unwise to increase our local fire danger in any way. They are noisy. They are a shameful insult to the historic Native American cultural and sacred lands. They mar our ability to enjoy our view of the ice age flood landscape which is a geological wonder bringing people from all over the world to see. This treasure is so rare in the world, and as stewards of our land it is morally reprehensible to not protect it. We already have hydroelectric dams that produce enough energy to supply our needs as well as others on the northwest who buy our electricity. Our local community will see very little profit from jobs, but will be paying the ultimate costs losing so much. Please don't build them on our beautiful Horse Heaven Hills. Elinor Woehler	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a
International Union of Operating Engineers	1091376	Please see document.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1091461	Our Climate plan needs to be aggressive. The timeline of 2045 that has been set, must be a Stretch Goal if we are to be successful with ensuring that the climate crisis has been put into remission. The 2045 goal is greater than a decade, and more than what has been recommended (2030) by science. Based on business best practices statistics, the 2045 goal is likely to be missed. If you want to meet the science based recommended deadline of 2030, a stretch goal should replace the goal of 2045. The fact that we have already lost 3 years getting started, and the fact that our goal of 2045 is likely to be missed, we should set a stretch goal of 2035. Further, to achieve the goal of 2035, this project must be properly funded and staffed. Do we have adequate and qualified staff?	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1091536	We don't need 244 turbines that will screw up our beautiful scenic views. That's why we live here. the little bit of power that is produced doesn't off set all the negatives. It will effect all of us in the tri-cities. every where we go we will have to look at this gross display of ugliness. I traveled the gorge last week and 2/3 of windmills weren't even working. When these things are broken we can't even dispose of them. They are an environmental hazard to us, the birds and the animals. All this project will do is make a few rich ,while the rest of us suffer for years the aftermath of what this will do to our area. How this can even be considered is beyond me. I was born here, stayed here because of our rivers and clean air and our panoramic views. Don't be fooled by unwarranted promises such as jobs. This is baloney. I've watched over the years projects like this that do nothing to benefit the majority only a few. How disgusting when we travel our state and all we can see is ugly windmills every where we go. We can produce power thru single power plants and even under ground that are far superior than these dinosaur projects. Please stop this. I'm getting to old to relocate but I will to get away from such devastation to our Tri-cities and all the ares for miles it will effect.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1091664	there should not let this happy to our area. they do not know how to dispose of them.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1091898	'IT CERTAINY SOUNDS LIKE SOMETHING WASHINGTON STATE CAN GO FORWARD WITH TO PROTECT OUR ENVIRONMENT BY Horse Heaven Clean Energy Center being the biggest carbon-free, renewable energy project in our state's history. As dirty, polluting fossil fuel plants across the Pacific Northwest are retired in coming decades, it will be up to projects like Horse Heaven to bridge the gap in our energy needs. Through a combination of solar, wind, and battery storage, HHCEC can ensure Washington residents continue to enjoy clean and water without having to sacrifice their health or the environment for reliable energy."	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1092122	I think Horse Heaven is great. Wish they sold stock I could invest in.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1092502	Data Request 2 Response 2 Attachment Wildlife states: "The issue of climate change has been cited as an additional threat to ferruginous hawk survival (Hayes and Watson 2020, Ng 2020). While predicting how climate change will affect ferruginous hawk is uncertain, the reduction in fossil fuel use and purpose of the HHCEC is one measure that can be taken to assist in the effects of climate change." Data Request 2 Response 2 also reports five ferruginous hawk fatalities attributed to wind turbine collisions in the Pacific Region over a 10-year period ending in 2012. Hayes and Watson, 2020 present this clear evidence of the lethality of wind turbines to the ferruginous hawk, and yet Data Request Response 2 has only uncertain and unstated predictions implying that the survival of ferruginous hawks may be impacted by climate change, and that wind turbines will save the ferruginous hawk by preventing the climate from changing. This is absurd. It is clear (see Hayes and Watson, 2020) that wind turbines increase mortality of ferruginous hawks. If the intention of the HHCEC is to decrease the mortality of the recently up-listed ferruginous hawk, the HHCEC project should eliminate wind turbines. Has Scout Clean Energy considered divesting wind turbines which have been shown to be fatal to ferruginous hawks? It is my opinion that Scout Clean Energy should divest wind turbines and invest in ferruginous hawk nesting habitats. Ferruginous hawks are most vulnerable during nesting.	Wildlife and Habitat	The EIS assesses the potential impacts to ferruginous hawk, and other raptors, from habitat loss, disturbance, and mortality associated with the Project in Section 4.6.2.4 including acknowledgement that the population may not be resilient to loss of individuals and habitat. This analysis drives the rating of high magnitude impact on ferruginous hawk during project operation (see Table 4.6-11b). Mitigation measure Spec-5 has been developed to require the Applicant to site infrastructure outside of core ferruginous hawk habitat and develop additional mitigation measures, such as turbine curtailment, in the event that avoidance is not feasible. Rationale for siting infrastructure and additional mitigation measures will be reviewed by the TAC and approved by EFSEC.	4.6..2.4, Table 4.6-11b	n/a
Anonymous User	1092638	Without being able to read a hard copy of the EIS at my local Pasco library, I am strongly opposed to the project to install windmills, solar panels, and battery stations on the Horse Heaven Hills.I believe the project is not cost effective. Windmills are the ultimate in embedded costs and environmental destruction. Each on will weigh 1688 tons, and will contain 1300 tons of concrete, 295 tons of steel, 48 tons on iron rebar, 24 tons of fiberglass and many, many pounds of hard to get rare earths. And windmills kill protected birds. Solar panels require an extensive list of toxic chemicals to make them, and then these toxic chemicals must be safely disposed of. I believe that once the embedded and environmental costs of making windmills and solar projects and then replacing and burying them become apparent, these projects will be abandoned.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Pgjack01	1092709	Not interested in the project in my back yard no clear or long term benefits to the Tri Cities. This project will destroy our views of the surrounding areas that make the Columbia basin a beautiful picturesque landscape. The loss of wildlife is also a big impact that will be destroyed. Not in my backyard!!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. The EIS does assess the visual impacts of the Proposed Project as well as the impacts on wildlife. EFSEC would consider these impacts in their recommendation of the Project to the Governor.	n/a	n/a
Anonymous User	1092856	We are totally against the establishment of this project. This will not only destroy the view but more importantly the environment and well being of the people nearby with constant blinking of lights and peace of the area	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. The EIS does assess the visual impacts of the Proposed Project as well as the impacts on wildlife. EFSEC would consider these impacts in their recommendation of the Project to the Governor.	n/a	n/a
Anonymous User	1092864	We moved from Austin TX to Tri Cities not knowing about the Horse Heaven Hills Wind Farm Project. If we had known, we would have gone elsewhere (other city or state). The beautiful views and untouched nature is what drew us here. We discovered the Tri Cities area a few years ago when we visited the wineries. If we had nothing but memories of wind turbines on the horizon; we most certainly would not have returned. This area shows so much potential to grow in tourism -- but that would most certainly come to an end with nothing but wind turbines in front of them. As far as residents, we would not benefit from this project (unless you are renting your land out). This is not to mention the wildlife that call the Tri Cities their home.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1092865	This is a project which will line up money to farmers lending the land and big corporation which will export the energy out of state. We, the citizens of tri-cities, will suffer for years to come. Not only we do not need this energy as we are well served by nuclear, hydro and existing renewables, we should focus on improving the livelihood of the communities, well-being of its citizens and not big corporations driven by greed	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Edithanne	1092895	My husband and I have lived here since 1978 and love our local views of the Horse Heaven Hills. We moved here from a very industrial area in Pittsburgh, PA. The proposed windmills would change our beautiful sage step desert views to views of an industrial wasteland. We do not support a venture in our backyard designed to solve a problem in Seattle and that we do not accept the notion that "sending energy value to our west-side neighbors is worth forfeiting the economic and environmental health of our own community."	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1092897	I have lived in the Tri Cities all my life and part of the beauty here is the wide open sweeping spaces and views. These wind turbines would ruin that. No more sunsets! There'd be a huge turbine blocking the view! Tri Cities should not have to be responsible for providing energy for the west side. This is not our problem and the residents here don't want it. It should not be forced on us. Our opinions should matter much more than they seem to.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1092904	I live less than a mile from House Heaven Hills in Badger Canyon. EVERY DAY I gaze at that horizon. It would BREAK MY HEART to have to look at those ungodly wind turbines, and for what??? A few cents saving in power for somebody, somewhere?	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1092930	I am a resident of Pasco who loves this area and loves the outdoors. The Columbia Basin is a very unique ecosystem with disappearing native habitat. The sagebrush steppe habitat is home to many different native flora and fauna that are declining in numbers due to human development and disturbance. Mule deer throughout the entire western United States has been in a downward spiral. The main cause for their decline is development and destruction of their habitat. We have several species of native hawks and owls here in the Columbia Basin as well. They are also suffering from human development. There have been efforts to help them where their habitat has been threatened, such as the Army Depot just outside of Irrigon, OR. Burrowing owls are a native species that depend on an intact sagebrush steppe ecosystem to live and reproduce. The one thing that all of these different species have in common is they share the same habitat and they decline in population with human disturbance. The windmill project that is proposed through the Horse Heaven Hills will destroy native strips of wildlife habit forever. Not to mention, we do not need the beautiful views of the Horse Heaven Hills to be permanently destroyed with loud, gigantic, noisy, flashing lights. This is just just displeasing to me and most other residents. It is the reason that wildlife and plants will not have any benefit from this proposed windmill project.	Wildlife and Habitat	The EIS assesses the potential impacts to special status species, such as burrowing owl, in Section 4.6.2.4 and provides mitigation measures in section 4.6.2.5.	4.6.2.4, 4.6.2.5	n/a
Anonymous User	1092974	I advocate that the issue be put to a ballot measure vote by the people affected. The vote should include all of the residents of Benton County, as well as the residents of Pasco in Franklin County and the residents of Burbank in Walla Walla County. Only by approval of the majority of the people affected would this impact to their life-style be allowed.	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1093116	I am opposed to the Horse Heaven Hills Scout energy windfarm project.This will create asthetic pollution and will slaughter migratory birds and has a very damaging environmental footprint. There are much better more acceptable energy generation production options for our community to be considered that will be much more reliable and take up a fraction of the land mass ie nuclear. At the very least move this bad idea elsewhere. Sincerly, Vince Shawver, west Richland	Wildlife and Habitat	Impacts to wildlife, including migratory birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1093161	Kathleen Drew, Chair Energy Facility Site Evaluation Council Madam Chair Drew and Council Members: Thank you for the opportunity to lend my support for and endorsement of the Horse Heaven Clean Energy Project which seeks to develop, operate and construct Horse Heaven Windfarm as a renewable energy generation facility located in unincorporated Benton County. It is my understanding the Project is consistent and incompliance with Benton County's Comprehensive Plan and applicable zoning ordinance in effect as of the date of Application. An old axiom says a successful pilot has as many landings as take-offs. Well, this project will be a successful pilot should the Council decide to take-off with it and undoubtable, it will land as a success. At this point in the process, you most certainly have received testimony on both sides of the issue, so I won't take more of your time citing statistics you presently have at hand. Rather allow me to say, if there ever was a project which checks all of the boxes needed for approval this is the project. The boxes of which I speak include community involvement, high-paying construction jobs with benefits of retirement and health care, educational opportunities, programs for careers in the renewable energy sector, advancing Washington state's broader clean energy economy and forming partnerships with the surrounding cities, counties and state entities assuring the quality of life. In the construction industry, we like to say when a project is on the books, it should not cost jobs but should not be jobs at any cost. Said in another way, honoring the environment while creating high-paying, high-skilled construction jobs are compatible. At the risk of acting as one who has been vaccinated with a phonograph needle, I respectfully ask, with leadership from you and input from the Council, to move this Project forward for all of the above reasons. Thank you in advance for your consideration, Allan B. Darr Retired Business Manager, IUOE Local 302 and International Vice President. allanbdarr@comcast.net (425) 446-0958 (Text)	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1093178	If you have ever driven west on highway 14 towards John day dam at night and had to look at all of the flashing RED lights along the skyline it is a sickening site. It is hard to imagine those annoying RED LIGHTS constantly Flashlng across our beautiful Tri-Cities skyline. I'm sure a more isolated place could be found that would serve the same purpose.	Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations.	4.10	n/a
Anonymous User	1093258	Adding all the wind turbines to the horse heaven hills would be giant eye sore for the tri-cities. Why should the tri-cities be burdened with them for other areas that need the power. Put them with the other turbines along the gorge in rural areas and not in someone's back yard	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1093294	I do not support the installation of wind turbines in the house heaven holds. I believe they will have a negative impact on our local environment and economy.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1093300	I fully agree with the Yakama Nation's comments about this renewable energy facility. They have submitted some really valuable points and definitely they should be considered. Renewable energy is great, but the tribal rights should be considered, it is on their ancestral land after all! Thank you. Joe Wiederhold Bellingham, Wa	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Kitty Neill	1093302	I am very familiar with the wind farms located in Sherman County, Oregon. While this is a very rural area, towers have been placed less than 1/2 mile from farmers' residences. These turbines are extremely noisy, sounding similar to a commercial aircraft waiting for take off, and thats just one turbine - imagine hearing that noise times 20 or more within the same area. They are very unattractive and have visible oil leaks. The red, blinking lights at night are disturbing, especially if located close to a residence. Many of these turbines in Sherman County, Oregon have exceeded their 20 year lifespan, and were upgraded a couple of years ago to larger blades. Where did the old blades go? I suspect there are no recyclable materials in either the tower or the blades.	Noise and Vibration	Noise and vibration impacts are addressed in Section 4.11 of the DEIS and are not expected to cause impacts detrimental to human health from noise or vibration.	4.11	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1093336	I am opposed to the Horse Heaven wind farm project. The negative impact on the people of the Tri-Cities and its surrounding communities will be negative. It will be a blight to views and future development in the area. It is simply unfair to ask one portion of the state to shoulder this massive burden to satisfy the whims of those in Olympia. There are alternatives to generating power that do not require such monstrosities. It is simply a short sighted and selfish project. Shame on those who have let it progress this far. Sincerely Sharon Schwenk	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1093402	This comment mainly concerns the continuously blinking red lights at night or Aircraft Detection Lighting System. HB 1173. This is a worthy bill, it begins to address, in a small practical way, the tremendous impact the new energy generating systems are having and will be having in Eastern WA. The Energy Facility Site Evaluation Council and the multiple Investment, Hedge Fund companies rarely care about the impact on our local communities. It is about money and a movement away from our low-cost current power to new sources such as wind and solar. I challenge any resident of this state to come over and view the red lights blinking all night and tell me they like the look or would live near these things. The lights are similar to a crime scene, and it is a crime to view of thousands of wind turbines across our landscape. This bill proposes a simple system to lessen some of the impacts from these monstrosities. Of all the money spent and all money these absentee companies that will make, this seems like a small ask for something the local communities will have to live with for a lifetime.	Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations. Additional mitigation measures (such as using ADLS) recommendation will be considered.	4.10	n/a
RAS256	1093541	This process essentially bypassed local planning authority by going directly to the State. There are multiple reasons NOT to do this project in this location. They include: - Negative impact on a thriving local tourism industry associated with wine country - The electrical power is not needed locally due to our hydro and nuclear power generation capabilities - If the West side of the State needs additional generation capability then put it there, the wind we get all comes from the West anyway - When the Federal/State subsidies dry out, this project will fail just like what happened in California where the coastal hills West of I-5 are littered with abandoned wind generators. - Negative impact on bird life, this area is part of a major bird migration path	Land and Shoreline Use	The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. This includes voluntary applicants such as the proposed facility. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 and associated regulations. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout to choose to apply for site certification through EFSEC (RCW 80.50.060 (2)). A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.	1.2.3	
			Wildlife and Habitat	Impacts to wildlife, including migratory birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1093603	The proposed siting in the Benton County in the Tricities is unacceptable. I consider to be urban and not rural. Theres are other areas which are better suited. I don't want to see any windmills!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1093640	I am concerned our community well water may be contaminated by oil leakage from the wind turbines. Our home is supplied water from the Southgate Water System which is located near the lease boundary. My apologies if i missed the following in the draft EIS but I did not see a response or mitigation plan to address oil leakage from the wind turbines and its impact on ground/surface waters.	Water Resources	Hazardous materials would be required during construction and operation and include synthetic lubricating oil and hydraulic oil for turbines. Applicant commitments include a Spill Prevention, Control and Countermeasures (SPCC) Plan for construction and operations. Recommended mitigation includes employee training on how to report and address spills according to the SPCC Plan and a requirement for spill response equipment to be stored in vehicles and equipment on site. The Applicant commitments along with the proposed mitigation resulted in no significant adverse impacts determination to changes in water quality.	Section 4.4.3	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1093789	SEPA WAC 197-11-440 (5) (b) requires that the EIS identify and analyze reasonable alternatives, including the proposed action, that can reasonably attain the project's objectives at a lower cost and a decreased level of environmental degradation. As it stands now the DEIS lacks identification and analysis of reasonable alternatives. Analysis: The placement of the wind turbines on the Hanford Reservation would provide an ideal alternative site for the HH Wind Project. The turbines can be built as tall as necessary to make up for any topography shortcomings because of existing flight restrictions on the site. Also there is an abundance of land, out of public view, that will never be suitable for occupation. Lastly, the transmission infrastructure is already in place! Conclusion: The Hanford Reservation would be a more suitable site for the HH Wind Project. This option needs to be considered in the DEIS.	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1093852	I have been a resident of Richland, Washington for nearly 25 years. My primary form of recreation is bicycling in the Horse Heaven Hills (HHH) between Finley and Prosser, more than covering the range of this proposed project. I love the scenery and solitude of the HHH. I have found that the existing windmills in the HHH do not detract from my enjoyment of this environment whatsoever. In fact, I believe windmills are a positive addition to the HHH because they allow landowners to generate additional revenue from their land. This will likely delay or eliminate the desire for large landowners to sell their land for future development. Keeping this area agricultural is paramount, and this wind project will only help preserve its agricultural, rural nature. The fact that windmills are visible along the hills has at best a minimal impact on the viewshed. Keeping the area rural is far more important than keeping the hills free from windmills.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1093933	I am writing to you today in support of the Horse Heaven Clean Energy Center. I am a fish biologist, a retired Washington Department of Fish and Wildlife manager, and the former co-chair of the Independent Hatchery Science Review Group. As a fish biologist, I urge you to strongly consider the positive impacts of this project in addressing climate change and salmon. The warming of our climate is well documented and the impacts of increasing water temperatures in the Columbia River system are also well established. We have seen increasing water temperatures throughout the system. These increases have had devastating impacts on salmon. The development of wind and solar energy projects, like Horse Heaven Clean Energy Center, could give our power and fish managers in the Columbia River System greater flexibility to provide spill for the salmon passage. Additional non-hydropower sources can help reduce our hydropower dependence, allowing for additional spill during the critical salmon mitigation season. There is no reason we should not pursue the opportunity for our hydro, wind, and solar power managements to work more closely together to protect salmon populations. Without such projects as the Horse Heaven Clean Energy Center providing additional non-hydro megawatts of power, these opportunities will simply not exist. I want to recognize the good work of the Energy Facility Site Evaluation Council (EFSEC) in its issuance of the Draft Environmental Impact Statement (DEIS). I urge you to continue to follow the data and science when assessing impacts and appropriate mitigation. Do not let our system of environmental review be taken hostage by politicians who do not respect science and data or by citizens who simply look at these issues through their lens and not at the overall benefits of the project. The simple truth is that hydropower may not be able to produce at the same level in the future. Therefore, I believe it is critically important for us to support renewable projects like this that produce needed power and give us the best chance to manage our hydro system to continue to provide much needed renewable energy while maximizing our ability to protect salmon. Lee Blankenship	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1094011	Wind farms are insufficient for meeting our state's energy needs. For this and many other reasons, I oppose the proposed wind farm.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Vicky Keller	1094013	I DO NOT support the Horse Heaven Wind Project	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1094030	The Horse Heaven Hills wind farm proposal is not going to assist in true energy production economically or in reality- it costs MORE energy to make these windmills than they will ever produce number one. The maintenance costs are added on top of that and make wind farms a total bust for the tax payer. Furthermore they do not run constantly and shut down if the wind is too high and simply don't run if we don't have enough wind. This is compounded by the fact that solar is also not consistent in cold weather at peak energy needs so what power or energy would supply the grid- the dams do but the unwise Inslee has once again attacked them vowing to take them out. Finally wind farms do hurt the environment- migrating birds primarily but they also raise the average temperature throughout the year 3-4 degrees - during the warmer months that means greater evaporation and on low snow pack/high temperatures that means drought which damages an entire ecosystem animal, plant and human. Do you want to be 119 degrees instead of 115 degrees the highest temperature recorded in Kennewick - Las Vegas has temperatures at 120 degrees but they are a desert. Then the spin-wizards will tell you it's global warming- the same people that nationally advertised the fall of the polar bear who are doing better than ever. These wind farms are not good for the East coast whales and many true environmentalists have been raising the issue for some time only to be quashed by the ideological powers that now govern our media and this Biden administration we are in which Inslee is a part of. Wait doesn't he care about wales? Apparently only when it's convenient to create a narrative which was NOT remotely true and if Republicans were smart - they would immediately impeach the 9th Circuit Judge (9th Circuit being the most overturned circuit in the country historically) down in Portland for not holding parties accountable to his own 2014 Biological Opinion. He may yet have a hand in this too because all Inslee or Murray have to do now is wink his direction- he knows what to do. No. This is not about saving earth-it is a political battleground for control and they will use energy and green energy ideas that don't have longevity yet to do it. Why else at the same time would the rotten EPA WOTUS (waters of the United States) rule kicked out under Trump controlling every mud puddle ever to form be reinstated- to hamper farmers - all this while Biden appointees over the Corps of Engineers, USDA, US Wildlife, US Forrest Service, US Reclamation (think about the largest Water Right in the Country by Grand Coulee) Department of Energy, EPA, Chamber of commerce tribal governments right to clean air and clean water, Department of Transportation (barges or in this case air traffic patterns) with all their governmental grants and weight all be brought to bear on Eastern, WA - because we are an easy target and once the precedents are established here - they form the basis for unelected bureaucrats and bureaucracies to rule over the very people and lands they were designed to serve. I am against these wind farms from beginning to end - it is pretty package containing a bucket of sewage as old as the Clinton's administration which the snarl alone is lethal. We have reached critical mass. I do not want to see Kamala Harris's husband back here celebrating over our resources and literally delivering a death sentence to this state nor do I want to see Inslee - the jerk we kicked out of our 4th Congressional district get his revenge. He has tried through Covid - a now proven bust and HE was at the center of - the same guy who with Bob Ferguson experimented with vaccines on inmates in Sheldon and Walla Walla - and were caught trying suppress it with regard to vaccines as well as other drugs- the same two jerks who magically privatized Pedophiles and are releasing the worst of the worst from McNeil Island as we speak. Benton and Franklin County Commissioners have a due diligence to use their NEPA authority review in the oversight of these wind farms - the EIS wasn't done properly over the dams and they weren't in all likelihood done right here. Am wondering if they even know what those checks and balances are much less how to use them. But the citizens in both counties need to apply pressure at the County level- it is the proper level along with public comment.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. This includes voluntary applicants such as the proposed facility. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 and associated regulations. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout to choose to apply for site certification through EFSEC (RCW 80.50.060 (2)). The Project meets the definition of an "alternative energy resource" that includes "wind" and "solar" (RCW 80.50.020(1)(a)-(b)). EFSEC is a council comprising the directors of five state agencies (or their designees) and a chairperson appointed by the governor. Counties, cities, and port districts where a potential project is located also appoint members to EFSEC. For this proposed Project, Benton County Board of Commissioners has appointed a member.	n/a	n/a
Franklin County Democratic Central Committee	1094031	Franklin County Democratic Central Committee WHEREAS clean, renewable energy is essential to combating climate change here and across the globe; WHEREAS the Washington Democratic Party has adopted as part of its platform, "Increasing support for development of renewable and sustainable energy programs to supply electricity to the power grid to meet or exceed statutory climate goals for Washington State and the Paris Climate Accord globally"; WHEREAS the Tri-Cities continues to pursue a policy of transitioning our economy based on the regionally-supported strategy of "cleanup to clean energy"; WHEREAS wind and solar energy are necessary parts of achieving renewable energy goals and can improve energy resiliency in the Tri-Cities during extreme weather events; WHEREAS family-supporting-wage jobs are a necessity for families to thrive in our region and have the opportunity to enter into and stay in the middle class; WHEREAS union jobs fulfill the need for family-supporting-wage jobs; WHEREAS local unions, and therefore our friends and neighbors, are slated to fill the jobs necessary for construction and maintenance of the energy sector; WHEREAS it is estimated that the Horse Heaven Clean Energy Center project is estimated to create almost 1,000 family-supporting-wage jobs and generate more than $75 million in labor income for our local workforce; WHEREAS the Washington Democratic Party has adopted as part of its platform, " Organizing millions of workers into unions is the most effective way to reduce poverty and restore balance to an economic and political system dominated by giant corporations and billionaires;" WHEREAS private property ownership is a bedrock aspect of American life, up to and including being able to sell and lease private land as the owner desires; WHEREAS the Horse Heaven Clean Energy Center project will be built on privately-owned land with the owners' consent; WHEREAS Washington has developed a system to allow landowners to go through the state to ensure energy projects on leased land go through a rigorous but fair environmental impact process; THEREFORE BE IT RESOLVED that we, the Franklin County Democratic Central Committee, do hereby submit this resolution, as part of the public comment process, in support of the approval, construction and upkeep of the Horse Heaven Clean Energy Center. Initial motion passed by the Franklin County Democrats during its regular meeting on January 19, 2023.	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1094046	One big disadvantage of wind energy is that no matter how great the technology becomes, a wind turbine will never be able to be more than 59.3% efficient according Betz's Law. Betz's law states that the wind which passes through the blades of a wind turbine can never be captured to more than a 59.3% efficiency because of the physical laws of moving parcels of air. Negative Impacts on the Environment: Wind turbine blades can be extremely hazardous to birds, especially turbines that are built near migratory flight pattern areas. Wind turbines are very susceptible to damage from lightning because of their tall and metallic form, which, in very few cases can be dangerous for nearby animals or people. Wind turbines also generate noise, and when they are built close to homes, may be a disturbance to people. Wind turbines create a shadow flicker, which can be disturbing to nearby residents.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. Potential project impacts and mitigations on wildlife, noise and visual, light and glare are discussed in respective chapters of the EIS.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Wildlife and Habitat	Impacts to wildlife, including migratory birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1094103	Local citizens are being asked to sacrifice too much at the hands of a company trying to make money off an energy source that is not needed here or welcome here. This monstrosity will taint our landscape and I have no effect on carbon emissions. Plus, the city of Kennewick has no ability to provide water for construction. Our community is against this project.	General - opposition	Thank you for your comment; your concerns have been noted.	n/a	n/a
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	Section 3.4 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
Anonymous User	1094142	I am writing to you today in strong support of Scout Clean Energy's Horse Heaven project located in Benton County. As a former Washington Department Fish and Wildlife fish biologist and the current CEO of Northwest Marine Technology, I have always encouraged leaders throughout Washington to follow the science to determine best environmental practices in the protection of salmon. For five decades, my company has been a leader in protecting endangered fish species throughout Washington State. As a State and a Nation, we need to drastically reduce our dependence on fossil fuels and simultaneously diversify our energy sources. Reducing greenhouse gas emissions, diversifying our energy sources, are essential to saving our diminishing salmon populations. Washington State is already facing significant impacts on vulnerable fish populations due to climate change. The declining salmon populations and subsequent decline in Southern Resident Orcas require us to pivot to more advanced renewable sources of energy. Horse Heaven is exactly the type of project to lead this transition. Scout Clean Energy's hybrid facility will combine two clean energy resources, wind and solar. Diversifying our renewable resources could possibly allow our hydro system to operate differently to enhance river flows that can help our salmon populations. Scout's Horse Heaven project will help reduce impacts on salmon by reducing our dependency on fossil fuels, stabilizing grids, and increase energy efficiencies. While it is the true every energy project has impacts, it is clear from the DEIS that these impacts have been independently analyzed. For instance, the visual impacts according to the DEIS will vary widely at different distances. I do not mind looking at wind turbines, but I do find it ironic that some of the opposition foes do not complain about irresponsible growth, sprawling mansions, and ongoing practices that damage our fish and wildlife. Even though the project has impacts, I am encouraged that the Energy Facility Site Evaluation Council's draft EIS identified potential mitigation measures to address the impacts. I would encourage EFSEC to avoid pandering to dysfunctional local politics that are not based on a factual review of the impacts and benefits of the project. Thank you for considering my comments on this unique and exciting renewable energy project. As a society, we can't look the other way anymore and pretend that the impacts of climate change are not real. We also cannot pretend that we do not need wind and solar power projects to fuel our economy. Thank you, Dave Knutzen	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1094245	The Horse Heaven Wind Farm is a non-starter, and absolutely should not be built. The negative impacts are abundant, and the proposed actions to mitigate these impacts are extremely lacking. The degradation to the shrub-steppe environment and the large impact to birds and bats, especially raptors like the horned lark, white pelican, sandhill crane, and ferruginous hawk are unacceptable. On top of the nuisance and disruption to the environment and ecosystem in our backyard, the local people in Benton County do not want to look at these windmills, as they are an eye sore. Furthermore, these windmills do not last very long relative to other power-generating operations, and recycling all these materials is not feasible right now. It is incredibly wasteful to produce wind turbines and then scrap them in the landfill 20 years later, and Benton County wants no part in that. To make matters worse, nameplate capacity of windmills (in this case, up to 1,150 MW) is nearly impossible to achieve. The intermittent power of windmills is so inconsistent, it becomes difficult to properly power the electric grid. Typically, wind farms operate at ~5-15% of their nameplate capacity, and for the little amount of power that this wind farm would produce for how many turbines there are, it is absolutely not worth building. Nuclear and hydroelectric are the only sustainable power supplies that are not wildly intermittent. The people in Benton County support those kinds of plants, including new small modular reactors that may be constructed here. We want nothing to do with new wind (or solar) farms that are wasteful and a huge impact to the wildlife.	Vegetation	The EIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1094366	I oppose the placement of wind machines along the Horse Heaven Hills. This will cause harm to the beauty of our area. These machines are not environmentally friendly as they do not last forever, but the materials they are made of can not be safely disposed of. We are blessed with nuclear power that should be used as we move forward. I do not want to have these erected here, and then send the power to Seattle or out of state. Please keep the Tri City area the way it is. You are only satisfying a few to ruin it for the rest of us. The jobs they say they will create are again few in comparison to the whole.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1094460	Please auppport the Horse Heaven draft EIS for its project to make the area the center of clean energy in he State of Washington.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1094505	I want to record my opposition to the currently proposed wind farm development for Horse Heaven Hills. The turbines will not only ruin the local views, but it is also more complicated than simply aesthetics for Tri-Cities residents. The presence of turbines will ultimately impact our weather including changing wind patterns and raising our local average temperatures. This will affect all the farms, orchards, vineyards and agriculture in the area, thereby the region's economy, as well as the city residents. The sound will descend on the Tri-cities and the multiple blinking lights will project for miles into windows and homes. Native birds and animals along with our native lands and plants, many of which are protected species, will be negatively impacted. The fragile habitat will be destroyed by construction and operational activities. New roads will disturb soils and will increase dust additionally causing health problems for residents and increase issues for those with respiratory problems. Washingtons Department of Fish & Wildlife Statewide Technical Lead on Wind and Solar has stated in regard to this project "…The immense size of the HWSB along the Horse Heaven Hills ridgeline and the subsequent landscape-scale impact to an important habitat and ecological connectivity will be difficult if not impossible to mitigate. It is important to note that the lineal Horse Heaven Hills represent some of the last remaining functional and uninterrupted shrub-steppe and natural grasslands in Benton County… Development within this ridge will result in further fragmentation and isolation of shrub-steppe and grassland habitat as well as loss of function and value to wildlife."	Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Vegetation	The EIS provides a comprehensive assessment to Priority Habitats and special status plant species in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts such as dust. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat and special status plant species were identified as a cumulative impact due to the decline of priority habitats throughout Washington and sensitivity of special status plant species, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a
Anonymous User	1094583	We oppose the Horse Heaven windfarm project by Scout Clean Energy for a number of reasons, none of which were adequately addressed in the EIS. First, and most importantly, earlier generation windfarms are now beginning to show performance issues well before their design lifetime (<60%) has been reached. An example is the Biglow Canyon windfarm in Oregon operated by PGE although there are numerous other examples. Scout has proposed an even larger design with limited operating experience. Because of performance issues of the smaller designs this seems terribly risky. As a minimum, until final reports are in and reviewed of the existing windmill design issues, the Horse Heaven windfarm should be delayed. The EIS should specifically address these flaws and show how they are resolved. Second, we concur with other comments that the visibility of the windmills throughout the Tri Cities is detrimental to the viewscape, property values and further growth in the area. As a minimum the approval process should include an outreach effort with viewscape simulations. These should be posted for a lengthy period, in affected areas in order to gain input from a broader slice of the population. Next, the economic justification is not well treated particularly when compared to replacement power from hydro. If the majority of the energy will be exported to the westside of the state, then transmission losses need to be included. This raises the possibility of alternate sites closer to the end use; that is, on the west side of the state. Doug & Cathy Adkisson 1240 Plateau Dr, Richland WA	General - opposition	Thank you for your comment; your concerns have been noted. Alternative scenarios are discussed in the EIS, chapter 2.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character. Visual simulations, based on project engineering design, are included in Appendix 3.10-2 including views from residences, recreation areas, and travel routes .	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1094931	I am writing to you today to tell you that the wind project on Horse Heaven Hills is terrible! The Horse Heaven Hills are a beautiful view seen from all over the Tri-Cities and the wind turbines will ruin that view. I live in West Richland and will be affected by this view, as well as the noise, wind issues and sunlight glaring off the turbines. The "power" that will be made by these turbines will go to Western Washington! Why would we do that? Western Washington needs to figure out their own energy issues, not use our land and views for their benefit. For so long we on the eastern side of the Cascades, have been the step children of the west side of Washington. It's time for western Washington to take care of itself. I respectfully ask that you don't let the wind turbine project go forward. Thank you, Geneva Carroll West Richland, WA	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
ccraigmills	1095163	I am writing to oppose the current plan for the HHH wind farms for the following reasons: 1) Potential impact on wildlife migration corridors; 2) Lack of recycling plans for turbines; 3) Potential impact on tourism and property values; 4) Better siting options away from HHH and surrounding views for Tri-City residents	General - opposition	Project location is selected based on several factors including but not limited to viable above-average wind speeds in the area, sufficient flat area and solar irradiance to site solar PV panel, proximity to existing transmission lines and williness of to participate in the Project.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Anonymous User	1095267	Hello, I am writing as a concerned citizen of Tri Cities. I am extremely opposed to the Horse Heaven Project. Windmills have been shown to have a negative effect on people and wildlife (See paper titled "Environmental Impact of Wind Energy" by R.Saidur N.A.Rahim M.R Islam K.H.Solangi) especially given the close proximity of this project to a large population that is expanding exponentially. Please do not approve this project. It will leave a negative impact on the Tri Cities area that will be felt for decades to come. Brittany Cartwright	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1095290	I initially commented a couple of years ago when SCOUT Energy first proposed the Horse Heaven wind farm and the Richland City Council had a comment period before the EIS was sent to Gov. Inslee. I am VERY OPPOSED to the proposed wind farm. I am not against alternative energy sources but have never been a proponent of the wind turbines. I believe they are truly an eye sore covering beautiful open landscapes which are rare enough in this day and age plus the fact that half the time they don't seem to be working cuz the wind direction is not going the right way, and there is no real means of storing the energy when there is wind either. Plus when you realize all the materials needed to first produce them and then they only last approx. 20 years and then have to be disposed of. Not to mention the havoc in creates for wild life in the area. On top of that--we in this area already meet state carbon reductions since we have abundant hydro and nuclear power, and so the wind farm does not really benefit except for a handful of jobs--it benefits the West side of the state and maybe other states as well. So if you insist you need wind turbines to meet the rest of the state's carbon mandates--then find some place on the West side to build them!!!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1095334	It's time--lets do this!!!!!	Agreement with the Project	Comment acknowledged.	n/a	n/a
Drstrange	1095389	There needs to be a lot more work and study of this project before you even think of building it. We are now finding out that wind turbines are having a devastating effect on the bird population and the noise these turbines make needs to be evaluated. Overall I do not think this should be built at all	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
Anonymous User	1095397	If you wouldn't want these in your backyard, please do not put them in ours.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1095563	We need to take better care of what is left of our environment, for wildlife, marine life, plant life, and people.	General - opposition	Thank you for your comment; your concerns have been noted.	n/a	n/a
Anonymous User	1095764	We are devastated to think of the ridge lines in our area lined with windmills, the impact to birds and animals, the flashing red lights at night. Concentrate on the dams which are already in place, and provide power in all types of weather. Picture from the top of Badger Mountain of the untouched Horse Heven Ridgeline.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS. Photo received.	4.6	n/a
Anonymous User	1095937	I fully support clean energy.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1095941	Please commit Washington state government to support clean energy at the state level by permitting Horse Haven.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tom Pierson, Founder Earth Friendly Properties	1095969	I am writing today as the former President and CEO of the Tacoma-Pierce County Chamber and the founder of Earth Friendly Properties. I am corresponding to express my full support of the Horse Heaven Clean Energy Center. As someone who has worked in Olympia for State Senator Pete von Reichbauer and across the State of Washington on economic development projects including in the Tri-Cities, the Horse Heaven Clean Energy Center exemplifies the kind of project we should support. First, we simply need power. Due to the near-term closure of coal-fired plants, the 2021 Northwest Power Plan calls for the development of 3,500 megawatts of renewable power by 2027. The state needs the power to avoid the risk of rolling blackouts that would be devastating to our regional economy. Second, the 930 jobs for skilled construction workers in the Tri-Cities would average an annual salary of $113,500. Studies show the full build-out, the project will produce at least $73 million in labor income and $143 million in total economic output. Following construction, 56 high-paying long-term jobs will be created. This is significant improvement for the Tri-Cities region. The Horse Heaven Clean Energy Center will also be a state-wide energy and economic asset. As we are aware, we are all dependent on each other. The western part of the state depends on the agricultural community of the eastern part of the state. The eastern part of the state depends on the westside ports, consumer markets, and overall economic infrastructure. West side ports are critical to the agricultural community. This project will create west-side port and shipping jobs while also producing workforce development opportunities for both sides of the State. I would also argue there is a great opportunity for the eastern Washington agricultural community, including the wine industry, to brand themselves as the most "green renewable" products produced in the country. With Hydropower, wind, and solar energy, we all win, including mother earth. Best wishes, Tom Pierson, Founder Earth Friendly Properties PO Box 502 Milton, WA 98354	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1095995	As a concerned citizen and lifelong resident of the Tri-Cities I am against this wind turbine project. I recently retired from Franklin PUD and know that we get the majority of our power from hydroelectric and nuclear and that we also meet state carbon reduction mandates. The energy produced from this project will be used to solve other utilities needs to bolster their clean energy portfolios which are located in western Washington. Certainly there are other more rural locations in eastern Washington that this project can go to that does not affect thousands of people and could use the boost to their economy. Keep our scenic vistas clean and take this project somewhere else. Carrie Locke Franklin County Resident	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1096105	I support wind and solar energy development; however, I do not support placing the proposed wind farm so close to the Tri-Cities community. I do not believe the submitted study accurately reflects the impact to our community. A local team has completed an analysis of the project that evaluates economic impact associated with property value, tourism and environmental impact. Please take this into consideration and find a location that is not so close to our community.	Socioeconomics	Comment acknowledged. Project impacts on property values will be assessed in the final EIS.	4.16	4.16 - Discussion of Project impacts on property values

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
cbartram45	1096490	I am strongly against the proposed Horse Heaven Hills wind turbine project. The size of the project is far too large and will affect the entire community. It will ruin our scenic vistas which in turn will jeopardize tourism and economic growth. I understand that these very tall wind turbines are very noisy and contribute to noise pollution in the community. The Tri Cities is very fortunate to have hydro and nuclear energy sources that are very cost effective and clean. Wind turbines are not cost effective without the energy credits given to the industry and are not reliable when the energy is most needed. The enormous increase in trucks to bring in the wind turbine parts and to erect the turbines will add to the air pollution in our beautiful area. And lastly, the disposal of the blades in land fills during routine maintenance adds to the environmental problems in our area. Scout Energy should find a location for their project in California where the energy will be used. The fact that Scout Energy is going around the wishes of the Tri Cities Community and submitting an application to the Washington State Energy Facility Site Evaluation Council for permission to build this project is infuriating.	General - opposition	Thank you for your comment; your concerns have been noted.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1096562	The windmills are worthless, they operate using oil, they are an eyesore, do not produce enough energy to offset the costs, and kill our birds of pray!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1096685	Scout's Horse Heaven Clean Energy Center is an Essential Energy Source and A Winner for the Tri-Cities To date myself, I first started working on Tri-Cities issues in 1968 when I first went to work for U.S. Senator Warren Magnuson. Later I was elected to the U.S. House of Representatives in 1976 and served for 36 years as a Member of the House Appropriations Committee. During that span of time, I developed lifelong relationships with the Tri-Cities community and people like my longtime friend Sam Volpentest to Congressmen Morrison, Doc Hastings, and Dan Newhouse. I successfully fought for funding and supported almost every major Tri-Cities initiative from Nuclear Power and the cleanup of Hanford, to countless Pacific Northwest National Laboratory initiatives. I also have spent time fishing and hunting in the area. I believe the Tri-Cities is a unique and special place made up of great and innovative people. I have always felt a special connection to the area. I've had the opportunity to learn about the Horse Heaven Clean Energy Center project in the Tri-Cities and I am convinced it is a great project that will provide 1,150 Megawatts of needed power while also generating $262 million in new revenue that will help keep local taxes from rising at higher rates. These investments will result in new funding for important public services, such as the hiring of teachers, police officers, firefighters, and nurses. It is estimated that the project will create over 900 construction jobs and up to 16 permanent jobs. And importantly, the project developer has made good on its commitments to the community, recently signing an agreement with local labor unions that will ensure the project is built by the Tri-Cities workforce who will have access to good-paying jobs that are close to home. Put simply, The Horse Heaven Clean Energy Center project will put the Tri-Cities on the map as a cutting-edge renewable community with a thriving green economy powered by integrated hydro, wind, and solar power. This project will also substantially advance the local communities' efforts to make the area a regional Clean Energy Hub and work in concert with nuclear and hydropower. How can the Tri-Cities claim to be a clean energy hub if it is opposed to wind and solar? The development of this project is timely as all of us have recently felt the increase in extreme weather events - excessive heatwaves and other storm events are becoming far more common. With a growing population and increased local demand for power, we need our existing hydropower and additional wind, solar, and energy storage projects like Horse Heaven to meet that demand and avoid brown and blackouts in the Tri-Cities and around the Pacific Northwest region. Power experts and the new Northwest Energy Plan called for 3,500 additional megawatts of generation to meet this demand, with renewable energy playing a key role. Our economy and our families cannot be put in jeopardy by failing to adequately prepare for a robust energy future. As an old friend and supporter of the Tri-Cities, I am convinced the Tri-Cities and the Northwest need the Horse Heaven Clean Energy Center. The Tri-Cities has always embraced needed changes and it has prospered for it. Former US Congressman, Norm Dicks	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1096835	To the Energy Facility Site Evaluation Council: Scout Clean Energy's SCE proposal to install an estimated 244 wind turbines and solar arrays over a 110 square mile area between Benton City and Finley in Eastern Washington, with some turbines as tall as the Seattle Space Needle will negatively impact the lifestyle many of us here in Eastern Washington have chosen for ourselves. I value the wide open space, rolling hills and agricultural vistas; vineyards, orchards, wheat and farm fields that I see as I travel from my home in Prosser to the TriCities. In fact one of my most treasured views is when I leave my son's home in South Kennewick heading south on Highway 395, looking directly at the Horse Heaven Hills and as I continue westbound on I82, I can view the four peaks of our area, Rattlesnake, Red, Candy and Badger Mountains all lined up and the expansive Horse Heaven Hills to the south with the evening sunset as backdrop. The community of the TriCities has worked very hard for a very long time to develop an outstanding hiking trail system from Badger Mountain across Little Badger Mountain to Candy Mountain, because the people here value our unique and striking views. We appreciate the natural beauty and diverse wildlife of living in a rural area. We live here because we love living here, we don't want our land, views and night sky negatively impacted by SCE HHH project. Think how the people of the Puget Sound would feel having 250 wind turbines on the slopes of Mt. Rainier. Or on the banks of Puget Sound. Our views and vistas are just as treasured to us and should be considered when placing large scale projects like the one proposed. The communities of the TriCities, from Prosser to Burbank, including Commisioners from Benton County have come out in the majority against Scout Clean Energy's (SCE) proposal. However, SCE circumvented our local authorities permitting process and applied directly to the State for approval, cementing a distrust of SCE to work with local jurisdictions on the environmental and personal impacts of the project. The first step in siting any project should be the input of the surrounding communities. It makes me so angry that now the approval of this project, given its size and consequence, has been given to a committee who will not have to live with the direct daily consequences. This Energy project does not directly benefit the citizens of the surrounding Tricity area in the way of supplying energy needs or even replace the use of fossil fuels for energy production in Washington State. See link below. The energy produced from this project will be sold to companies outside of Eastern Washington and possibly Washington all together. If this is the case, Scout Clean Energy needs to site this project in the area where the energy is needed and in truly rural areas where the impact to the people living there is minimized. Alison Burgett 159401 W Richards Rd Prosser WA https://www.forbes.com/sites/jamesconca/2021/03/08/wind-turbines-on-washingtons-horse-heaven-hills--how-not-to-pursue-a-green-new-deal/?sh=68fbb1dd508d	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1097189	4 comments in uploaded pdf named 202301025 Morton Comments	General - Question for EFSEC	In accordance with WAC 197-11-455, "the draft EIS shall be issued by the responsible official and sent to any person requesting a copy of the EIS from the lead agency (fee may be charged for DEIS, see WAC 197-11-504)". On December 16, 2022, EFSEC notified the public of issuance of Draft EIS. The Draft EIS was available for public review on EFSEC website and copies were sent to local public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Copies of the Draft EIS along with the Horse Heaven Wind Farm Project Application for Site Certification, (EFSEC Application/Docket No. EF-210011) were available for public review at 8 local libraries on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, as stated above, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	Comment #2: The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Public Services and Utilities	Generation and disposal of solid waste during the decommissioning stage for turbines would include the blades to be cut down or dismantled into smaller sections for transport by regular-sized haul trucks and turbines to be refurbished and resold or recycled. So not all waste from turbines decommissioning will be considered for waste disposal in landfills. Lastly, the landfills considered for end of cycle waste disposal are Columbia Ridge Landfill which has a permitted remaining capacity of approximately 329 million tons and Finley Buttes Landfill which has an estimated available fill capacity of approximately 130 million tons of municipal solid waste.	4.15	n/a
Anonymous User	1097358	As a Benton County resident it appears to me that this is a great spot for wind energy to be produced. My life has been centered around agriculture and I have a good understanding of highest and best use of agricultural and range ground. This ground has relatively low value and production potential for agricultural uses and a wind energy development would provide the land owners a much better return on their investment, increase our county's tax roll and provide clean energy to the grid.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1097396	So Many Tri Citians - So Little Voice - WIND FARM APPROVED	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1097436	No to this plan for huge windmills cutting off our beautiful open view. Eastern Washington should focus on hydro, nuclear, the newer small nuclear plants, rather than unsightly wind turbines that kill wildlife and are unreliable and unusable unless the wind blows. At the very least, place them far away from any city or put them where they do not block the view. Also note, the blades and components of these massive windmills go into landfills....they do not break down into soil...EVER. Keep our reliable dams, utilize our nuclear plants, and shelve windmills until better technology is developed.	General - opposition	Thank you for your comment; your concerns have been noted. Potential Project impacts and proposed mitigations for wildlife, visual quality and other resource areas have been comprehensively discussed in the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1097518	Blighting our beautiful Horse Heaven Hills with hundreds of bird killing wind turbines is unconscionable. Shame on the Audubon Society for stating that the impact to birds is minimized if these unsightly wind turbine farms are located properly. I strongly oppose this project on environmental grounds.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1098075	Our group of concerned citizens have been working on this issue for over two years. I've seen environments destroyed, animals killed, and the turbines themselves FALL APART. To me it seems that these wind turbines are a WASTE of money, they have an expiration date, and no means of clean-up when expired! I've asked Solar Co.'s where they recycle the batteries. They have no idea! Please reconsider building these wind farms until we are conclusive that they are best for our HHH agricultural area and will NOT DESTROY OUR BEAUTIFUL COUNTRYSIDE AND WILD ANIMAL LIFE!	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
J dortch	1098381	I believe the environmental impact will affect animals and public access to the are. I oppose the wind and solar project. With the impact potential to the environmental stability and access for the public, I vote no wind project.	General - opposition	Thank you for your comment; your concerns have been noted.	n/a	n/a
Anonymous User	1098606	My husband and I both agree that the wind turbines are not necessary for our area. We think they are a waste of materials and a problem for the birds that fly in our area. Not much has been said about the fact of how much water and cement they require and the fact that the blades have to be buried and do not decay.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Water Resources	The EIS includes estimates for water usage for construction and operation phases in Section 3.4.1.5. An estimated 120 million gallons of water is required for Project construction. Project operation is estimated to require 5,000 gallons per day for facilities and 2,025,000 gallons annually for solar panel washing. Impacts to water are assessed in Section 4.4 and no significant unavoidable adverse impacts were identified.	Section 3.4.1.5 and 3.4	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1098719	I am against the wind farm proposed for Tri-Cities Washington. It is a bad fit for our community! Our beautiful sunset views, Our scenic countryside vistas will be a Marg! And all for what? And for the benefit of the west side of the state, and for the pocketbook of the contractor proposing this plan! Surely there is another location in a more rural place. This is a good looking town, a town growing much too quickly, and many decisions Concerning the livability of our area are being made. This decision is a biggie! Mark it is huge! We must turn down the Wind farm plan!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1098867	These windmills will of course be a major eyesore for the Tri Cities and the numbers of birds killed will be devastating. It seems that solar farming is likely to follow along the same footprint. Since both of these supposed green energy resources are intermittent, the need for huge amounts of battery storage to collect this energy for timely use is obvious. The recognized limited life span of these devices along with advanced technology resources will in 20 plus or minus years push them into obsolescence. There is little to no proposed future support to remove these components. What is likely to remain will be an entanglement of forever debris and trash scattered across the area. Why isn't nuclear power being considered in an area that has supported this technology for 70 years or so? The Hanford reservation could easily support renewed nuclear power and cause no additional burden to the local area.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Mike Minelli	1098906	Please See Attached	Wildlife and Habitat	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. The EIS considers the potential impact to loss of wildlife habitat, including indirect loss through sensory disturbance, as well as habitat fragmentation and creation of barriers to movement in Section 4.6.2.2. Mitigation measures have been recommended to reduce these impacts to wildlife (see Section 4.6.2.5), specifically Hab-1 and Hab-2, which were developed to mitigate potential impacts to wildlife movement corridors and draws, and Hab-5 which was developed to address indirect habitat loss that may occur due to wildlife displacement.	4.6.2.2, 4.6.2.5	n/a
Anonymous User	1098992	I am opposed to locating wind farms near the Tri-Cities for the following reasons: 1) they are an eyesore 2) they harm the environment by killing raptors 3) they should be located near the populations that want the power. 4) they are intently wasteful of resources as a source of power. Nuclear is great more efficient. Small nuclear plants should be investigated. 5) the cost and planning for their eventual decommissioning should be included in estimates and the money for the same set aside.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. .	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including raptors, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1099021	Unreliable power. Cost is out of control too expensive to build and maintain.. Cogeneration with gas will have a smaller carbon footprint in the long run if all things are considered.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.		
Anonymous User	1099048	We are excited to be part of this project to provide clean, renewable energy that our country so badly needs. Our land is in a windy place. We are glad that this energy can be harnessed to provide reliable energy. This energy will be collected while still allowing farming to continue growing wheat on this land. Our land is in the right place at the right time to participate in this important growth of wind energy for our nation which is seeking alternatives to using fossil fuels.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1099049	Wind mills should only be installed on land that would not have any future use such as residential, commercial or agricultural development. The placement of the proposed wind mills south of kennewick are not beneficial to our area and will only hamper any future development and are not environmentally friendly to wildlife. A better placement would be between Yakima and Ellensburg where no development could ever occur or on Federal land below Rattlesnake mountain on the 240 corridor.	Land and Shoreline Use	The Benton County Comprehensive Plan's purpose and intent is to provide for local needs relating to the use of land and infrastructure, including the protection of property and water rights and, in so doing, meet the state's minimum planning law requirements. In accordance with RCW 36.70A.070, the comprehensive land use plan includes the following required elements: land use, rural, housing, transportation, capital facilities, and utilities. The land use element presents the framework within which future growth and development will occur consistent with community objectives and the requirements of law. Consistent with GMA requirements, the land use element designates the proposed general distribution, location, and extent of land uses for agriculture, timber production, housing, commerce, industry, recreation, open spaces, general aviation airports, public utilities, public facilities, and other functions, as applicable, and describes development densities and projections for future population growth.	3.8.1.2	n/a
Anonymous User	1099127	Due to the overwhelming data supporting the inefficiencies of large scale wind farms relative to size and scope, their damage to native birds of prey that are quite prevalent in Eastern WA, and the daytime and nighttime visual pollution wind farms create, I am adamantly opposed to the proposed wind farm in the Horse Heaven Hills.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1099221	Wind turbines use massive amounts of oil; when they break, they leak that oil directly into the ground, contaminating fields and water sources. Turbine blades are not recycled, they are buried in mass pits to further contaminate the ground. Fires from broken turbines, leaking oil and lightening strikes would be a highly dangerous prospect in the horse heaven hills being in the desert already and so close to our homes.	Public Health and Safety	The ASC states that 5 gallons of lubricating oil will be needed for each turbine per year. Oil would be brought in, and waste oil would be removed using by a maintenance contractor using a specialized vehicle. Impacts of the Project resulting from hazardous materials use and storage are discussed in Section 4.13.2 of the EIS. The applicant has committed to developing and implementing a SPCC Plan to address potential spills during Project Operations, as noted in Section 4.13.2.4 of the EIS.	n/a	n/a
Anonymous User	1099240	I hope this wind farm is not a done deal. I am a Long time environmentalist, but the more I learn about the siting of this particular wind farm, the more I oppose it . I am a resident of Richland. It appears that this wind farm will loom over the entire Tri Cities, visible from each of the three cities. Visible from downtown. .Richland. It will impact each resident intimately. I am learning that the placement will destroy a good deal of the scenic beauty that residents and tourists value. Wind farms do not belong along the edge of cities! We are now an urban area of more than a quarter of a million people, not a remote rural region. The project does not belong here.	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1099331	The DEIS for the Scout Clean Energy Horse Heaven Project shows an estimated death rate to birds and bats. Benton and Franklin counties and the areas surrounding the SCE HHH project are predominately agricultural farm lands that rely on bees, birds and bats to pollinate fruit orchards, vineyards and other income producing crops. A significant danger to birds and bats exists and the true effect cannot be established without specific locations for the turbines. SCE must be required to submit a site plan showing the location of each turbine to determine the impact to adjacent crops. https://www.usgs.gov/faqs/why-are-bats-important https://learnbirdwatching.com/do-birds-pollinate/ https://www.usda.gov/media/blog/2014/10/29/working-night-shift-bats-play-important-role-pollinating-crops https://letstalkscience.ca/educational-resources/stem-in-context/how-do-wind-farms-affect-birds-and-bats	Wildlife and Habitat	Impacts to wildlife, including birds and bats, are addressed in section 4.6 of the EIS. Mitigation measure Hab-6 requires the Applicant to work with an advisory group and EFSEC to develop the final project layout and design, including how the Applicant will implement Applicant commitments and recommended mitigation measures.	4.6	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1099349	To the Energy Facility Site Evaluation Council I am concerned about the installation of over 244 wind turbines by Scout Clean Energy's project in the Horse Heaven Area in Eastern Washington. This article from the Harvard School of Engineering shows the effects of large wind turbines can increase day and night time temperatures by .24 degrees Celsius. https://seas.harvard.edu/news/2018/10/large-scale-wind-power-would-require-more-land-and-cause-more-environmental-impact A rise in local temperatures could have unknown effects on so many things. The cooling of homes in the summer, crop production and harvesting, the temperature of rivers and stream. I am against installing wind turbines in our direct area for this reason and so many more (noise, animal and bird population disruption and the disturbance to our landscape and views). I believe more study needs to be done before this large scale wind farm is installed in our area.	Air Quality	The Harvard study of 0.24 degrees Celsius warming is theoretical model that is based on the assumption that one third of the continental U.S. is covered with enough wind turbines to meet present-day U.S. electricity demand. The Horse Heaven project is a minuscule fraction of the total area included in the Harvard estimate and even if the modeled result were true, the relative magnitude of the purported temperature change would not be expected to result in a measurable change in local climate conditions.	4.3	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
Anonymous User	1099540	I feel the wind turbines would significantly damage our beautiful landscape.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1099575	I am very much opposed to the wind farm project because of the severe negative effect on our environment. Few people in our area support it other than the very few greedy people who will gain financially from it's construction. The Horse Heaven Hills is a unique geological formation that adds to the scenic beauty of Eastern Washington and our wine country. Let's not destroy this asset with a hideous and expansive wind farm. The Horse Heaven Hills AVA is an important part of our wine region which brings tourist activity to the Tri-Cities and surrounding areas. This is a financial benefit to the entire community. I cannot understand why this wind farm is needed when we have abundant hydroelectric power. Wind energy is not very efficient. It produces a minimum amount of power for the cost and no power when there is no wind. It is my understanding that most of the parts are manufactured in China. How many birds would be killed by these wind mills? What happens when the blades need to be replaced? Where would they be buried? The cleanest, most environmentally friendly, efficient and cheapest energy is hydroelectric. Keep the dams on the Snake River. Spend the money to improve fish ladders rather than something as environmentally destructive as the proposed Horse Heaven Hills wind farm. We have a beautiful and clean natural scenic environment. Let's Keep it that way!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1099635	Today is January 28th. We received ballots this week for school Levy's. I was sad when I opened the envelope, because I was hoping we would be allowed to vote yes or no for the installation of huge turbines on our hills, but our governor did not give us that opportunity. The Tri-Cities are made up of three close cities - Richland, Kennewick and Pasco. There are 325,000 residents in the Tri-Cities. Between Richland and Benton City there is a growing city named West Richland. They have 15,000 residents. It has already been determined that in the center of Richland we will be able to see about 100 turbines. That is just not right. One of the worst things about having huge turbines and red blinking lights at night is that they will be here forever. The only thing our community receives from this is ugly hills. We have beautiful colorful sunrises and sunsets that may not be so pretty anymore. Since 325,000 residents have no say, I am hoping that the company from another state at least does not cover all of the hills with these huge turbines. Sandy Fishback Richland	Visual Aspects, Light and Glare	Same as comment 1100580. Additional mitigation including potential turbine removals have been proposed by the Applicant with additional turbine removals to be considered by EFSEC, during their project review process, to reduce impacts on visual resources. See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project. As part of Mitigation Measure R-1, the Applicant is required to develop and maintain an adaptive safety management plan to keep recreation enthusiasts safe. Paragliding is an unofficial recreational activity at the launch locations on public lands closest to the Project. A Data Request has been provided to the Applicant requesting information on the downwind effects of the turbines.		Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the Final EIS
Anonymous User	1099667	Popular Mechanics: Turbines failures are on the uptick across the world, sometimes blades falling or spinning out of control and flying off, or even full turbines collapsing. When these conditions happen, it causes major damage to surrounding properties. July 2019 Junipter Fire in Klickitat County Washington caused by a faulty turbine, the blade falling off and catching the field on fire. These windmill turbines will be sitting on the ridge with homes at Tripple Vista, Canyon Lakes and Seal Springs. Homes and businesses are expending south on the hillsides every day. Remember in 2018 the Bofer fire it didn't take long for the fire to get out of control putting homes and lives in danger the community was lucky it only destroyed 5 homes and over 5,000 acres.	Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a
Anonymous User	1099699	I am a resident of Finley Washington. I am totally against this proposed windfarm going in above my home and the homes of thousands of my fellow Tri Citians. I would like to comment from a scientific point of view. I spent a significant part of my working career as an employee of Energy Northwest's Maintenance Department, (Columbia Generating Station). Most of my time there was spent working with very large rotating equipment; (i.e., huge: motors, turbines, pumps, and generators) A significant portion of my employment involved specialized training in the "Vibration Analysis Department" so I feel I can comment with some degree of authority. Simply stated, all rotating equipment produces some degree of vibration, and as such the vibrations are felt in the rotating structure and its mounting point. In the case of these hundreds of Space Needle sized windmills it will be "felt" in the ground they are mounted on, and then transmitted perhaps as far as 5 to 10 miles away. One recent scientific Italian study measured a small windfarm's vibrations 6.8 miles away. I'm absolutely positive Scout Clean Energy will promise all of us that their windmills will not produce any "significant" vibration or discomfort to any of us stuck basically forever with this boondoggle. Like the tobacco industry the windmill industry will always need more studies to prove anything negative about their product. Vibration from these windmills - the closer you are, the more you will feel in the seat of your pants, and then at the same time be able to see the ripples in your coffee cup. Anybody want a good buy on a million-dollar new home with a two-dollar view and a small vibration problem?	Noise and Vibration	The wind turbines will generate ground vibrations at at such low levels (less than 10^{-6} meters/second at 1 kilometer [0.6 miles]) that their impacts will be insignificant. (Llavero Hurtado et al., 2017)	4.11 (Ground Vibration)	
Anonymous User	1099712	I do – with some qualms – support the Horse Heaven Hills Wind Farm project. Our growing state population and worsening climate are increasing our need for electricity. We need more low-carbon including renewable sources for that electricity. This project also includes benefits for local farmers, construction jobs, and some long-term jobs. Scout Clean Energy seems to have established a good working relationship with the Yakama Nation, which should minimize damage to culturally important areas. I strongly support the 150-turbine option over the 244-turbine option. The Horse Heaven Hills is not an ideal site for a massive wind farm, but the 150-turbine option should cause less harm to wildlife, wildlife habitat, and habitat connectivity. Fewer turbines should also reduce the impact of this project on our views. I'm concerned that the project could cause catastrophic losses to the ferruginous hawk population. Increased bird kills by wind turbines and transmission lines; disruptive activity near nesting sites, flyways and foraging areas; and the project's negative effect on one of their main prey species, the Townsend's ground squirrel, can be expected to increase losses to this species. This an important breeding ground for ferruginous hawks. I'm also concerned about impacts to other species. For example, sage sparrows and burrowing owls are already struggling, and pronghorn antelope need access to water. I realize this is a draft, but I hope the final EIS is more specific. I support the proposed mitigations to reduce the impact on wildlife, habitat and habitat connectivity. But how will they actually be implemented? As just one example, wind turbines will be moved farther away from canyons "where feasible." Minimizing the number of wind turbines too close to the draws and canyons, and transmission lines and roads crossing those draws and canyons, is important. The draws and canyons are where we still have native habitat. The rest of the Horse Heaven Hills is also wildlife habitat, but it's been degraded by farming and grazing. I'm glad this draft includes modifications to the fencing around the northern solar array. But it's not clear to me whether these modifications match the recommendations of WDFW to allow wildlife access to water. Mitigations during operations and during decommissioning could also be more specific. I'd like to see specific commitments to minimize the environmental damage this project will cause. I'm not asking Scout to do the impossible. But let's make this project as good for the environment as it's really "feasible" to do.	Wildlife and Habitat	The EIS provides an assessment of impacts to special status species including Townsend's ground squirrel, ferruginous hawk, sage sparrow, burrowing owl and pronhorn antelope in Section 4.6.2.4. Impacts to general wildlife and habitat, including movement corridors and nesting are addressed in Sections 4.6.2.1 and 4.6.2.2. The dEIS acknowledges the potential for the Project to result in impacts to wildlife and special status species and has provided recommended mitigation measures specific to wildlife corridors, nesting birds, and special status species in Section 4.6.2.5. These measures include requirements for additional studies, creation of species specific management plans, and adaptive management through Project operation.	4.6.2.1, 4.6.2.2, 4.6.2.4, 4.6.2.5	
Anonymous User	1099831	I want to send a comment to adjudication which is no longer accepting comment?	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS. Public had the opportunity to submit their comments on the Draft EIS and adjudication process during the public comment period for each of the processes.	n/a	n/a
loeraj	1099869	We strongly believe this wind farm project is of NO benefit to our beautiful local community and insist on a hard pass. This will negatively impact our area's visual and aesthetic resources. With the project covering almost 50% of the Horse Heaven Hill ridgeline it will be seen by the majority, over 80%, of our residents. The red blinking lights at night will also be visible. Simply stated this will be too many huge wind turbines too close to too many people! This project is too large to be located so close to a metropolitan area. This is not the norm for wind farms of this size. Our community will only continue to grow and thus the project will effect more and more people in the near future. It should not be built or at the very least be moved to a more rural area and scaled down. We must protect the rural natural habitat of the Tri Cities! Joe and Patricia Loera	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	
jkochenauer	1099977	My greatest concern with the proposed wind farm is its close proximity to established residential areas. Not because of the sound (which is a worthy concern) or the visual pollution, but because these farms pose a wildland fire threat both in causing fires and preventing access for fighting natural cover fires. As a volunteer with Benton County Fire District #1, I work to educate residents and property owners about this urban-wildland interface so they can mitigate the hazards from wildfires. And now we have a private, for-profit company trying to force a new threat on these property owners, which has the potential to increase their property insurance rates and put added strain on our emergency resources without providing additional funding to support the specialized training and equipment needed to manage these threats. Wind turbines are a fire hazard. Mitigation includes constructing the wind farms far away from populated areas. That is being ignored with this proposal. When a turbine catches on fire, it can still spin as the blades burn, throwing burning debris far from the turbine and igniting additional fires. We do not have the equipment to put out a wind turbine fire. A study by the SP Technical Research Institute of Sweden shows that 10-30% of all incidents in wind turbines that lead to a halt in energy production are due to fire. An average wind turbine fire costs about $8 million dollars in losses. Is Sprout's insurance going to guarantee reimbursement of property loss and fire fighting expense in the event of a fire caused by their turbines? Please deny any and all permits for this project.	Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a
Anonymous User	1100110	Please do not build a wind farm in our backyard. This area has grown into a beautiful neighborhood. We don't want/need all the negatives that go along with wind fields. Please leave our neighborhood and homes alone.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	
Anonymous User	1100225	I am deeply opposed to this project as it will mar the landscape of our beautiful Horse Heaven Hills!!!! No no no! Suzanne Caron Richland	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1100290	NO WIND FARM - DO NOT DESTROY OUR REGION FOR THE PROFIT OF AN OUT OF STATE COMPANY OR ANY OTHER ENTITY. IT'S ALL ABOUT THE MONEY, NOTHING ELSE.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	
Anonymous User	1100337	I say no. This huge project heavily impacts or area. We hike and enjoy the out of doors in these areas. The west side of the state is benefiting from our suffering. This is unfair. There is a huge negative reaction to this plan in our area. So many have lost faith that they have any power so are not even saying no. This is so sad and is not want the United States of America is about. It seems that we as an entire community have absolutely no say in what happens. The project will go through and all they have to do is go through the outlined steps of offering us a chance to say no. The project is too large. If all parts of the state must pay the price of using renewable energy make the project smaller with less impact and make similar projects on the west side too What is wrong with hydropower and more of the new small nuclear plants We retired in Washington and remodeled our home so we could enjoy our old age here. We hike to stay fit and enjoy the wildlife. Between this plan and Washington state heavy taxes we are now questioning staying in the area	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	
Anonymous User	1100346	I added a comment under the other section on your home page. I am in great support of this project as it is needed not only as a power generating facility but it can benefit the green energy side of our fair community as it grows bigger by the day. Sacrifices must be made however small to ensure the ability to sustain electrical power production without huge impact to the environment. These are the future of our ability to do that. I am a union millwright in the tri cities area. I currently have a view of the south hills wind farm we already have there. It's not far from my home. I have worked on wind farm projects before. The contractors go to great lengths to ensure the ground and area disturbed is returned to its natural state when the job is completed as well as throughout the whole process during the build. Please see my other comment on the other subtitle on your homepage as it may have a bit of information that could be helpful.	Agreement with the Project	Comment acknowledged.	n/a	
Anonymous User	1100355	The community has spoken. We don't want the wind farm here.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	
Anonymous User	1100377	I have owned a home and have lived in Pasco, Washington for some 30-plus years. I am totally opposed to the proposed Horse Heaven Wind Project. Why should we in the Tri-Cities endorse or approve of a wind turbine project which would greatly benefit the western part of the state but which would provide very little benefit to the eastern part. On January 22, 2023, The Tri-City Herald's Editorial Board said it best in a headline entitled "Tri-Cities' sacrifice too great for wind turbine project." I agree entirely with what was stated in the Opinion piece. In addition, the cost to our avian wildlife would be tremendous. Slow-moving big-bodied birds like pelicans and herons, the majestic bald eagles, other eagles, osprey, and other water fowl would be killed along with smaller birds and migratory birds. All this to benefit only one section of Washington: the west. If the western part of the state wants wind turbines, they should build them where they live, not where we live. And our desert area is just as beautiful, in its own way, as the western part; better -- since we don't have the constant rain, wind, and humidity of the west. If the wind turbine project becomes a fait accompli, tearing down the hydroelectric dams will be next, and I am totally opposed to that as well. Please do not allow this wind turbine project to go ahead as planned. Sincerely, Kathleen Megow 3713 Road 109 Pasco, Washington 99301	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	
Anonymous User	1100523	.I can deal with the visual impact of the turbines during the day, but the nighttime illumination is an enormous and unnecessary blight on the area. It is my understanding that it is possible to install lights that would only switch on if there is an aircraft in the area. This should be a requirement for any installations in this area.	Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations. Additional mitigation measures (such as using ADLS) recommendation will be considered.	4.10	n/a
Pdcurc	1100540	This is a blight on our landscape and endangers our wildlife. The governor needs to start considering the needs and wishes of the east side of the state. Place the project elsewhere.	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	
Anonymous User	1100580	The Horse Heaven Hills area south of Benton City is a prime location for paragliding in Eastern Washington. The proposed wind farm will not only tarnish the beautiful area, but also pose several potential safety hazards to paragliding. There is the obvious risk of getting to close to a wind turbine and getting hit by a propeller blade, but this risk seems small and manageable. The larger concern is the huge area of turbulent air downwind of a turbine, which can significantly affect the capability of a paraglider to stay inflated and capable of flying. The Draft EIS does not address any of those risks or how they will be managed. It would be important to include some sort of assessment of unsafe area downwind of a turbine. I'd imagine the size of this area depends not only on the size of the turbine but also the wind speed and other external factors (e.g. proximity to other wind turbines, etc.). This would not only be of interest for paraglider pilots but also for other light aircraft (small planes, ultralights, powered paragliders, trikes, etc.). Please see attached some pictures of paragliding at the Kiona ridge (the ridge south of Benton City, between Weber Canyon Rd and McBee Rd).	Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project. As part of Mitigation Measure R-1, the Applicant is required to develop and maintain an adaptive safety management plan to keep recreation enthusiasts safe. Paragliding is an unofficial recreational activity at the launch locations on public lands closest to the Project. Section 4.12 has been updated to include downwind effects of the turbines.	4.12	Downwind impacts have been included in the Final EIS.
Anonymous User	1100581	The Horse Heaven Hills area south of Benton City is a prime location for paragliding in Eastern Washington. The proposed wind farm will not only tarnish the beautiful area, but also pose several potential safety hazards to paragliding. There is the obvious risk of getting to close to a wind turbine and getting hit by a propeller blade, but this risk seems small and manageable. The larger concern is the huge area of turbulent air downwind of a turbine, which can significantly affect the capability of a paraglider to stay inflated and capable of flying. The Draft EIS does not address any of those risks or how they will be managed. It would be important to include some sort of assessment of unsafe area downwind of a turbine. I'd imagine the size of this area depends not only on the size of the turbine but also the wind speed and other external factors (e.g. proximity to other wind turbines, etc.). This would not only be of interest for paraglider pilots but also for other light aircraft (small planes, ultralights, powered paragliders, trikes, etc.). Please see attached some pictures of paragliding at the Kiona ridge (the ridge south of Benton City, between Weber Canyon Rd and McBee Rd).	Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project. As part of Mitigation Measure R-1, the Applicant is required to develop and maintain an adaptive safety management plan to keep recreation enthusiasts safe. Paragliding is an unofficial recreational activity at the launch locations on public lands closest to the Project. Section 4.12 has been updated to include downwind effects of the turbines.	4.12	Downwind impacts have been included in the Final EIS.
Anonymous User	1100678	This proposed wind farm would create obnoxious visual blight on the Tri-cities and do harm to the environment. Clean energy should be built adjacent to the majority of the users. These windmills, if built, should be installed in Seattle and Tacoma. Their growth is creating the energy demand, so let them look at them.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	Revise FEIS to include ground vibration attenuation and the following source: (Llavero Hurtado et al., 2017) Field monitoring and analysis of an onshore wind turbine shallow foundation system Jesús González-Hurtado, Pengpeng He, Tim Newson & Hanping Hong Geotechnical Research Centre, Department of Civil Engineering, Western University, London, Ontario, Canada. Melanie Postman & Sheri Molnar Department of Earth Sciences, Western University, London, Ontario, Canada
William G. Jasen	1100689	See attached letter dated January 29, 2023.	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. The No Action Alternative was analyzed.	2.0	n/a
			Socioeconomics	Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy.	Appendix 4.16-1	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
William G. Jasen	1100694	Please ensure the residents of Benton County and the surrounding Central Washington area have the opportunity to vote in the next general election if the Horse Heaven Wind Farm should be constructed. The people of Central Washington have the right to decide on matters affecting our local environment and ecology, not the bureaucrats in Western Washington and a profit hungry Limited Liability Corporation (LLC).	n/a	Please refer to Submission 1100689	Please refer to Submission 1100689	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Visit Tri-Cities Board of Directors	1100695	Please see the attached letter of opposition from the Visit Tri-Cities Board of Directors.	Land and Shoreline Use	The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. This includes voluntary applicants such as the proposed facility. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 and associated regulations. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout to choose to apply for site certification through EFSEC (RCW 80.50.060 (2)). The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.	1.2.3, 4.8.1, 4.8.2	
Anonymous User	1100760	I am opposed to this project. The horse heavens hills wind park should not be built. It is to close to the existing community, it will endanger migrating birds, it will not provide many long term jobs, and the facility is not needed locally.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1100805	Wind turbines have numerous drawbacks and negative impacts on the environment and communities with noise pollution, threat to wildlife, especially birds, visual pollution and impacts on scenic views, potential health hazards. These factors become permanent scars on the land as the turbines have limited life-spans and cannot be recycled thus the land eventually becomes energy graveyards. This certainly has a gross negative impact on property values FOREVER. As an energy source, they fail as their production is intermittent and without any energy storage, a very difficult to use source and as mechanical devices, prone to high maintenance. Many of these projects across the country are created to take advantage of the federal subsidies that only last ten years then they become unprofitable so maintenance declines and defective turbines abandon. We should not let our area to become a playground for those who wish to exploit federal subsidies for profit at the cost of our environment. These issues raise questions about the sustainability, cost-effectiveness, and environmental concerns of wind energy as a solution for meeting our energy demands. Any turbine project MUST include a full life-cycle commitment by the developer which includes full restoration and off-site disposal of defective systems, damaged materials. See attached file.	Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.		n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures.	n/a	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1100866	I support the proposed Horse Heavens wind farm project. I am a new resident to the Tri Cities area. The goal of clean air and utilizing all of our resources to get us closer to the goal post includes the wind turbines. The wind farm is future oriented vs continuing to live in the past.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1100877	No No. we are totally against the continued pollution of these wind turbines due to the effect on the wildlife, environment, appearance, and lack of justified 'benefit'. Please do not approve this effort!	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS.	4.9	n/a
			Socioeconomics	The Project would serve as a source renewable energy. This benefit is aligned with the State of Washington's goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Also, construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project. The Project would pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	3.16 and 4.16	n/a
Anonymous User	1100936	I am generally in favor of wind farms…we need to use every form of energy available to us in a prudent manner. But this proposed, huge farm is not a good fit for this location. It will create a "wall" for future expansion of Kennewick and blight our horizon. At the risk of being a "NIMBY" - find a better location away from a major population center!	General - opposition	Thank you for your comment; your concerns have been noted.	n/a	n/a
Anonymous User	1100940	The Horse Heaven Wind Project would continue to the effect of other Wind Projects in damaging the scenery around the Tri-cites. Looking at the rolling hills with Wind Machines on top of them totally destroys the areas natural beauty. Wind Generators are also not the cheapest source of power. Let's invest in nuclear and solar. Strongly against wind generators.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1101015	I fully support bringing more renewable engergy resources to the area. The Horse Heaven Hills are a perfect place for this development.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1101051	I am absolutely against this massive, intrusive turbine wind project. This will negatively affect our neighborhood and our property values will severely decline. Nothing positive will result for us.	Socioeconomics	The Project would serve as a source renewable energy. This benefit is aligned with the State of Washington's goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Also, construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project. The Project would pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income. The impact of wind farms on property values is addressed in the EIS.	3.16 and 4.16	4.16 - Discussion of Project impacts on property values
Anonymous User	1101220	I am against locating the HHH windfarm on the ridges above the Tri Cities because of the visual impact and the environmental impact. There is plenty of power produced in this area already. They should be located in an area where the power is needed.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1101287	I feel that these wind turbines are a hazard to our wildlife migration and daily life. Noise levels, pollution (disposal of used blades that cannot be recycled). They are ruining the skyline that is so beautiful, flashing red lights and continual turbine noise. That you would consider wind turbines as "green" is the height of misdirection and misinformation. They are not even manufactured in our country but China! If they weren't subsidized they would not even be an option.They are not helping the citizens of Washington with our power needs but the power is sent out of State. In short, I am 100% against this technology for many reasons….	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.		n/a
Anonymous User	1101321	Christensen comments on HH Wind Farm in attached letter.	Wildlife and Habitat	The EIS provides an assessment of potential project related impacts to wildlife including state and federal species at risk (discussed under Section 4.6.2.4 Special Status Species). This section discusses the potential for the Project to result in loss of habitat required for special status species, including ferruginous hawk and burrowing owl, through direct removal and reduction of function from displacement of wildlife (e.g. sensory disturbance). The EIS evaluates the potential magnitude of impacts to special status species in Table 4.6-11b, which rates the magnitude of potential impacts from project operation on special status species as generally medium to high depending on the resilience of the population to anthropogenic changes. Mitigation measures have been provided in Section 4.6.2.5 to address species specific and habitat impacts.	4.6.2.4, Table 4.6-11, 4.6.2.5	n/a
			Vegetation	The EIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
WildRootJulie	1101353	Why are we allowing companies from other states to build wind farms in eastern Washington when Washington has the lowest energy rates in the nation (source: www.choosewashingtonstate.com) due to hydroelectricity?? Wind farms 1) are known to disrupt wildlife habitat and kill birds and bats, we have several species known to be impacted by this farm 3) inhibit wildlife movement with miles of fencing 3) are short-lived and resource intensive 4) are not recyclable (currently blades are cut up and disposed of in landfills) 54) require a tremendous amount of battery storage. Our state already has too many wind farms that are a huge eyesore. This feels like a money grab. If the dams are remaining in place, there is absolutely NO NEED FOR ANOTHER WIND FARM IN WASHINGTON STATE. If a renewable energy station must be built, I propose just the solar arrays, no turbines, without fencing (some other means of security that does not disturb wildlife such as video surveillance) and that hydrogen energy storage be investigated as an alternative to the battery housing facility.	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS. Mitigation measures have been proposed to reduce the magnitude of impacts to wildlife from mortality and barriers to movement (e.g. fences) in section 4.6.2.5, specifically Wild-1, Wild-3, Hab-1, Hab-2, Hab-5, and Hab-6.	4.6, 4.6.2.5	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101442	If Washington was really concerned with renewable energy they would look at adding another nuclear plant. Wind farms are notoriously unreliable. They produce 1/1000 the energy of a nuclear power plant and can only produce electricity in specific weather. Several studies have shown, for wind, the average power density — meaning the rate of energy generation divided by the encompassing area of the wind plant — was up to 100 times lower than estimates previously given by leading energy experts. When taking into account the additional issues of turbine-atmosphere interaction and a small increase in temperature because of wind changes, there is no positive environmental impact; in fact, it is a negative environmental impact. Not only are wind turbines a poor use of taxpayer money, but research has shown Horse Heaven Hills is not a good candidate. Environmental impacts are minimized only when wind farms are located on the ocean and oceans have more reliable wind patterns. If Washington is looking to maximize their output, then another location needs to be used (the coast). If they are looking to actually curb fossil fuel usage and improve emissions, we need to add another nuclear power plant. The reality is that wind power is not a viable alternative, we need to be using more nuclear power. It is clean, renewable energy.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101444	I am not in favor of a massive, intrusive turbine wind project. This is terrible for the vegetation, and the beauty of the Horse Heaven Hills. Not to mention a huge waste of the taxpayer's dollar! Thank you, Jan Lenkersdorfer	Vegetation	The EIS provides a comprehensive assessment to Priority Habitats and special status plant species in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts such as dust. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat and special status plant species were identified as a cumulative impact due to the decline of priority habitats throughout Washington and sensitivity of special status plant species, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a
Jayson1210	1101469	We are against the Horse heaven SPA because of negative environmental impact it will create on this area.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101481	Please do not pollute the entirety of our area with more windmills. They have proven to be an ecological detriment, and there is no plan for disposing of the aging equipment. Keep the dams, and stop the windmills.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1101488	I'm AGAINST this project. The facts keep getting ignored. Wind turbines are one of the least energy efficient and least green energy technology's available. They occupy massive amounts of land and kill many many birds. Furthermore they are flat out ugly. Additionally, the power is not going to benefit the local counties. They people have responded multiple times that they are against this project and they are continually ignored. Perhaps it's time to vote out the commissioners that are pushing this project.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101497	I hope that any migratory birds will not be disproportionately impacted and that this has been researched to prevent their marginalzation.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS. Recommended mitigation measures Wild-1 would require the Applicant to conduct a minimum of two years of post-construction monitoring and propose additional mitigation measures to reduce bird and bat mortality based on those data.	4.6	n/a
Anonymous User	1101526	I have sold and am selling view lots on top of Horse Heaven Hills and do not want these wind mills to be in our view. . I own from Badger Canyon Rd to Clodfelter Rd. Loren Miller	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1101562	We are not in favor of this massive, intrusive turbine wind project !!!!!!!!!!!!!!!!!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101568	What is the typical life span of the turbine blades, where will they go to be recycled, and who pays for that cost?	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1101578	Listen to your constituents who have elected you. Overwhelmingly we do not want this HH wind farm project in our community that already has sufficient electrical power. Short term employment for construction workers and need of minimal maintenance workers will not make up for the long term environmental degradation of our communities, deflated economy and loss of our relaxed lifestyle. You would not enjoy this project in your community if this affected your home.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101596	They are ugly and will ruin the skyline.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1101616	I strongly oppose the proposed Horse Heaven Hills wind farm	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101654	As a Kennewick resident I do not want our landscape changed for these windmills. They are not environmentally friendly and will harm the environment. We need to concentrate on what this area needs....hydro power and nuclear power. We do NOT want these windmills in this area.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101673	I am vehemently against the windmills! Why on earth would we want these here!? Environmentalists have already spoken to their damage and none of the electricity stays local!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101818	NOT in favor of this project.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101830	NOT in favor. Strongly against this proposed project.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101835	I have serious reservations regarding the Wind project for some of the following reasons: Obstruction of migratory bird paths, negative impacts to wildlife livelihood, and permanent damage to wildlife habitat.	Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101842	Not in favor.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101857	After reading this report on the health effects on these wind farms , I am very concerned that we will suffer symptoms from the vibrations and low frequency sounds as well as flickering. My husband has severe bouts of vertigo and we are closer than 3 miles to the windmills .we are in open country which makes these sounds and vibrations travel further. We recommend these windmills be moved back 3 miles from the closest human dwelling.	Noise and Vibration	Noise and vibration impacts are addressed in Section 4.11 of the DEIS and are not expected to cause impacts detrimental to human health from noise or vibration.	4.11 (Vibration and LFN)	Revise FEIS to directly address Vibration and LFN.
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1101890	I am very concerned about this report , this windmill farm , as close as it is to our city will cause horrible health problems. I am against this wind farm	Noise and Vibration	Advances in wind turbine and blade design have significantly reduced LFN emissions from wind projects and LFN is not expected to be a source of community annoyance from this Project.	4.11 (LFN)	Revise FEIS to directly address LFN.
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
Anonymous User	1101917	From what I understand, the batteries can only store 30% of the energy generated from these windmills , how can we justify the cost of this project compared to the small approved reactors that are safe and only take 6 acres of land and don't kill wildlife.... How are you protecting our environment, energy bills and tax dollars? Have we worked out all the kinks with this wind power? We finally have with nuclear, why aren't we using it?	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101926	I am vehemently opposed to this project. I've seen the terrible light pollution through red, flashing aviation warning beacons that this has caused in neighboring communities and I firmly believe it is not worth the risk. Our state is one of the largest providers of energy in the country via other sources besides windmills therefore I don't feel the "benefits" that these eyesores could possibly offer are worth the natural beauty and wildlife livelihood that they will be spoiling. NO WINDMILLS!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1101931	Take away the government subsidies then tell the public how these are self supporting. NO MORE WINDFARMS! How many windfarms are being built west of the cascades? NO MORE WINDFARMS!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1101942	The attached article is very disturbing, please address and consider the health of our community, there is too much evidence that these windmill farms have not been completely vetted . This farm is being placed too close to our community, the greater good for all argument is fading. I ask each committee member, would you want to put your kids and family close to this project with all the health risks? I recommend using only Solar and the small nuclear plants.	Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill response measures.	n/a	n/a
Anonymous User	1101944	This is a very bad idea. There is not enough energy produced from these wind mills to warrant the ugliness that comes having to see them daily. There is not enough energy produced from them to pay for the electricity it takes to start them.. There will be wind mill blade grave yards to hold the broken pieces throughout the years that will be filled with non biodegradable metal, plastic and whatever else they are made of. They will freeze in winter, look at Texas ! I vote no in putting these ugly useless monstrosities in our area. Lori Morrison Benton City	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1101951	I object to the proposed Horse Heaven wind project and provide the following comments. I request that EFSEC disapprove the project based on the impacts it will have to our Tri-Cities area. 1. I hike Badger mountain preserve in Richland 5 to 6 times a week for exercise. It's beauty is awesome both on the mountain and for the unique vistas available in all 360 degrees of direction. The wind farm would wreck the skyline vista in about 120 degrees of arc. This impact would be both day and night. The size of the towers and blades, along with the number of towers themselves would totally destroy the beauty of the southeast to southwest vista. The project amounts to the industrialization of our rural views, whether we live with sight of turbines or if we're hiking Badger Mountain, Candy Mountain of the Rattlesnake Mountain preserve. In addition, the turbines will be visible, including their blinking red lights at night, from many areas of Kennewick, Richland and Pasco. Thus impacting a large percentage of Tri-City residents. The negative impact on the community can easily be anticipated simply by looking at the visual impact of the wind farms located between Wallula Gap and Walla Walla. The project will in fact be partially visible from my home in West Richland and will impact my views to the south and the west. The blight on the landscape this project will cause far outweighs any possible benefit it might bring. I have included a picture looking south from atop Badger mountain. This view would become one filled with hundreds of tall turbines. 2. Eastern Washington has a significant number winter days of atmospheric pressure inversions resulting in cold and windless days. This occurs frequently during very cold weather, precisely when more generation is needed, not less! During the inversions, the wind drops to zero. Wind turbines in Washington are more productive in the summer, but that coincides with times that hydropower is at maximum levels and not as much help is needed from other generating technologies. Also, during very hot weather in the Tri-cities, the wind frequently drops almost to zero, precisely when more, not less generation is needed to meet load. 3. The generation from the project will not be used to meet load in the local area of Benton county, let alone in the State of Washington. We should not be forced to endure a disruptive project that will have no benefit for us. 4. The draft study fails to analyze the proposed wind project's impact on the people who would live near it. The results of a Tri-Cities Chamber of Commerce survey determined that 78% of respondents said the Horse Heaven wind farm was not worth the personal, environmental and economic impacts it would have on the Tri-Cities. 5. Ferruginous hawks are an endangered species in Washington state. It is apparent that this Wind project will have a detrimental impact on these hawks. The Washington state Fish and Wildlife said in its comments about the Horse Heaven project that the Horse Heaven ridgeline is among the last remaining functional and uninterrupted shrub-steppe and natural grasslands in Benton County and is an important foraging area for raptors. It said, "Maintaining sufficient foraging area to support successful territories and nesting for ferruginous hawks and other raptors that use thermals and air currents associated with the Horse Heaven Hills seems particularly challenging with current proposed structure orientation". 6. As a Washington State resident, I enjoy hunting in our beautiful state. My experience has been that once wind farm projects are constructed, both land owners and the wind farm companies severely limit access to private and public lands that were formerly open to hunting. This has occurred in the wind farm area between Wallula Gap and Walla Walla and in the areas northeast of Dayton WA an in the surrounding hills around Pomeroy, WA. I have observed this result directly as I have seen my hunting areas become more restrictive or eliminated. The effect has been to take land out of use for recreation and hunting, which is working against the efforts being mad by WDFW to acquire more land for hunting in Washington whether it be by direct land purchase to add public land, or arranging with landowners to place their land into "feel-free-to-hunt" designated areas. 7. If the State of Washington is truly interested in reducing CO-2 emissions as far as energy production and environment impact is concerned, the State should be focusing it's efforts on support for Nuclear power plant construction. The cost-benefit for a nuclear investment far exceeds that for a wind far given the magnitude of the environment impact and the far superior consistent power production capability. Respectfully Submitted, Andy Rapacz 3513 Eastlake Drive West Richland, WA 99353	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	The Project impacts on people were discussed in multiple sections of the EIS including but not limit to: 3.10 and 4.10 (visual aspects, light and glare), 3.11 and 4.11 (noise and vibration), 3.12 and 4.12 (recreation), 3.13 and 4.13 (public health and safety), 3.14 and 4.14 (transportation), 3.16 and 4.16 (socioeconomics). Benefit of the Project include supplying renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	3.16 and 4.16	n/a
			Wildlife and Habitat	The EIS provides an assessment of potential Project-related impacts on ferruginous hawks in Section 4.6.2.4. The assessment provides a description of the anticipated impacts to ferruginous hawks due to loss of habitat, displacement due to disturbance (indirect habitat loss), mortality, and change in preditor/ prey dynamics. The EIS acknowledges the potential impact to this species in by rating the magnitude of the potential impact at High, defined as an "*incremental change is sufficiently large that it approaches or falls within the range of impacts that could exceed the resilience and adaptability of the species or population, potentially impacting the viability of the species or population* " (See Table 4.6-2). The EIS provides recommended mitigation specific to ferruginous hawk (Spec-5) requiring the Applicant to avoid siting infrastructure in core ferruginous hawk habitat and developing a species specific management plan including additional mitigation measures, should avoidance not be feasible.	4.6.2.4, Table 4.6-2	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project. Information on hunting allowed on both private land and DNR-administered land within the Project Lease Boundary was not readily available after contacting WDFW.	4.12	n/a
Anonymous User	1101962	This windmill project will require trucks and trucks of cement , I am asking that if this project is approved, the truck traffic for this be limited to Locust grove which is a truck route and banned from Clodfelter rd., which is a residential area with school bus children and rural neighborhoods, which would present a danger to our community and ruin our road.	Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.
Anonymous User	1102003	Paraquat was sprayed in the Horse Heaven hills years ago, it seeps in the ground and stays there, when Scout comes in and digs these holes , how is EFSEC going to assure us that that dirt won't blow into the entire Benton County area from the south? Agent Orange is still causing cancer and illnesses after more than 50 years, will scout have a bond to cover health problems from this? I recommend taking samples from every hole dug .and having outside health officials from Benton County ok the dig, and in addition, strict dust control should be required as the wind blows from the southwest towards our community .	Public Health and Safety	The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. The ASC states that 5 gallons of lubricating oil will be needed for each turbine per year. Oil would be brought in, and waste oil would be removed using by a maintenance contractor using a specialized vehicle. The applicant has committed to developing and implementing a SPCC Plan to address potential spills during Project Operations, as noted in Section 4.13.2.4 of the EIS. An evaluation of down winder effects resulting from the Project will be added to the FEIS.	4.13.2	Provide evaluation of "down winder" effects resulting from Project construction, operations, and decommissioning.
Anonymous User	1102050	As a lifetime resident of Benton County, I am adamantly opposed to seeing these grotesque, inefficient machines being built anywhere within sight of our community and especially don't want them polluting our view of the Horse Heavan landscape we all love and enjoy. They may not be Mt. Rainier or snowcapped peaks, but they are a part of the area we call home. If Mr. Inslee is so dead set on covering the state with these ugly behemoths, then I'd suggest he begin by building them at the foothills of the Cascades near Mt. Rainier on the West side where they get plenty of wind or better yet, all along the Washington Coast. Maybe the folks on the West side will be more receptive to the destruction of their landscape than we are here on the East side.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1102100	I've been a resident of Benton County for over 74 years & want to say that I strongly oppose the building of these proposed windmills anywhere within sight of our community. The Horse Heaven Hills are not scab lands. To the residents of this community, they are just as important and beautiful as the Cascades or Blue Mountains are to those folks that live within viewing distance of those. I've heard these proposed windmills are as little as 40% efficient and the list of damage they will do is extensive. Building them across the crest of the Horse Heavan Hills will effectively shut down the only true corridor the City of Kennewick has to expand. No one will want to build within sight of these grotesque machines and the residences that already occupy the areas proposed for this project will suffer the brunt of watching their property values plummet and having to endure the sounds, flashing lights, additional roads, traffic, dust and all the other detriments that come with them. Much of this area is prime view property occupied by multi-million-dollar homes. The folks that built those homes paid dearly for the property they sit on and definitely didn't build up there so they could look out their windows and see these wasteful, destructive and buttugly machines. We, the people that reside in this community do NOT want them here!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Transportation	Comment acknowledged and is included in the administrative record for the EIS.	4.14	n/a
			Public Health and Safety	The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
Anonymous User	1102138	The opposition letter attached was dropped off at Kennewick City Hall by a Kennewick citizen. Submitting it on their behalf as a courtesy.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
The Applicant	1102200	Please see attachments.	n/a	Please Refer to the "Submission 1102200" Spreadsheet Tab	Please Refer to the "Submission 1102200" Spreadsheet Tab	Please Refer to the "Submission 1102200" Spreadsheet Tab
M59Steward	1102363	I wish to add my STRONG OPPOSITION to the HHH Turbine Wind Project. I feel this is a HORRENDOUS project to put in our back yard. The environmental impact statement does little to address the known FACT that there are ENDANGERED WILDLIFE in this proposed area, that will be unnecessarily affected by this senseless project. Please add my name as to voting NO on this project.	Wildlife and Habitat	Impacts to wildlife, including endagered species, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1102366	1-30-23 I have long had a belief that this whole effort to build a giant wind farm in Washington State is really some kind of a scam; and I use that language because the company that has pushed this idea, Scout Energy, has done everything it can to circumvent the will of the people on both sides of the state. They managed to find a way to keep local control out of this process, and have done this in such a manner that they hope that we haven't noticed that we are about to be fleeced. What if the reality is that none of us who live in this state actually wants this kind of windfarm built anywhere within the boundaries of the State of Washington? What if what is actually happening is that the company that wants to do this is manipulating all of us; and doing that by pitting east vs. west/Democrat vs. Republican in a strategy designed to keep us from realizing that our whole state loses if this wind farm is built. And I suspect that once one of this type of windfarm is constructed, that they will demand to build many more of them everywhere that they can. So, what is the reason that we are doing this? When I think of this idea of filling our landscape with 650-foot tall windmills I keep asking that same question: what is the reason that we are doing this to ourselves? What is the reason we are allowing a company from outside of our state to build a windfarm so large that it's negative impact to the landscape and the environment is beyond comprehension? And what is the reason we are allowing this to happen when the huge amount of money made from the small amount of electricity these windmills will produce, will leave this state and never come back? And another thing for us to ponder is if these windmills are not acceptable on the west side of the state what makes them to be acceptable in the eastside as well? If the people on the west side don't want them affecting their views of nature, and neither do those of us who live in the eastside, then maybe we should all agree that none of us actually wants them built anywhere in the state in the first place; so why are we forcing ourselves to do this? I have already stated that this will be just the first of these monstrosities to be built unless enough of us are willing to recognize how unfair and unjust the selection process has become, so that we can join forces and say no and stop this whole mess before it is too late. I am a member of the Tri-City Photography club and I have seen extraordinary photos of Eastern Washington that will take your breath away; photos of the beauty of the desert, of shrub steppe spring flowers; of channeled scab lands created by ice age floods; and of the rolling hills of the Palouse; all of which will be lost if this is done here. Isn't that the reason that the west side of the state doesn't want these windmills either. so that they don't lose the natural beauty of the surf crashing on ocean beaches; or mountain views with spring flowers blooming amidst the snow, or waterfalls that capture the rainbow of the sun; all of which they would lose if these things were built in their backyard. And that is what will be lost, be destroyed, if this project is allowed to be constructed in Eastern Washington. So, if nobody wants these windmills, then maybe the best path is to say no to this whole idea and instead we can work together, so we can find a better way to provide the energy that we do need and at the same time protect the natural beauty that exists throughout all parts of Washington State. Sam Geyer 2616 W. 37th Ave, Kennewick WA 99337 509-528-6222 scgeyer12@charter.net	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1102385	I am concerned about the environmental impact from the non-recyclable blades on the windmills. I believe the lifespan is about 20 yrs then they have to be disposed of in landfills. I also do not want windmills visible on the ridges, it greatly detracts from the natural beauty of the area. Also greatly concerned about the impact on wildlife from birds hitting the blades and from the noise the windmills make.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Bird collision with the turbines is considered in section 4.6.2.2 of the EIS.	4.6.2.2	n/a
Anonymous User	1102437	Oh, the one problem I'm not seeing mentioned is how the vast blades of turbines are currently choking landfills.(google it) The blades are built so well, they basically do not rot, nor can they be recycled. Somebody in Benton County needs to ask what they plan to dispose with the blades when our grit is done with them. What does runoff do? And out wind is gritty, leading to early retirement. I'd hate to be stuck with a same problem the early landfills got.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1102483	The western writer, Zane Grey, wrote about these hills in the classic Horse Heaven Hill western story. The location of this project has great cultural and historical meaning to the generations past and present. The Horse Heaven Wind Farm project's footprint is vast extending 26-miles long and covering 72,000 acres. The project will significantly impact the people and wildlife of multiple counties in Washington and Oregon. Multiple and significant adverse impacts cannot be fully mitigated. These adverse and cumulative impacts make this project unviable and inappropriate for the Horse Heaven Hills. 1.Loss and impact due to incompatible use of agricultural lands. 2.Loss and impact of natural resources due to destruction and degradation of wildlife habitat, habitat connectivity, and increased mortality of multiple species. 3.Loss and impacts to our local fowl and migratory birds on the Pacific flyway due to increased mortality from bird kills. 4.Loss and impact to historical and cultural resources for the Horse Heaven Hills are part of the ceded lands of the Yakama Tribes and Confederated Tribes of the Umatilla Reservation. The tribes have stories and have walked these hills for centuries, which will be a loss that the tribal people will suffer for generations. 5.Loss and impact to visual and aesthetic resources for the views of the beautiful hills, especially at sunset, will be forever disfigured. The location for this project does not conform to the comprehensive plan land use. Benton County has better locations for energy development on Hanford land that will not create this magnitude of adverse impacts. Alternatives for energy development, such as nuclear, should be considered that do not create this level of adverse impact. The Advanced Nuclear Reactor project is located on Hanford land already purposed for a nuclear reactor, and can produce 320-megawatts of energy. Increasing the scale of advanced nuclear on Hanford land can match the level of energy output proposed from the Horse Heaven Wind Farm.	Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Land and Shoreline Use	The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. Table 3.8-1A shows an analysis of the Project's consistency with the Benton County Comprehensive Plan's relevant goals and policies. For aspects of the Project's design that are not in alignment with the Benton County Comprehensive Plan, EFSEC would review discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant.	4.8.2, Appendix 3.8-1	n/a
			Wildlife and Habitat	The EIS provides an assessment of potential impacts to wildlife and habitat in Section 4.6 including habitat loss, displacement of wildlife (indirect habitat loss), impacts to wildlife movement, and wildlife mortality. These impacts have been further characterized in Section 4.6.2.6. Additional mitigation measures are recommended to reduce potential impacts to wildlife in Section 4.6.2.5.	4.6, 4.6.2.6., 4.6.2.5	n/a
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. Applicant Commitments as stated in Section 2.1.3.10 of the EIS include collaboration with tribes. Per EIS Section 9.2, Confederated Tribes of the Umatilla Indian Reservation and the Confederated Tribes and Bands of the Yakama Nation along with several others are on the Tribal Governments distribution list. EFSEC will initiate government-to-government consultation with Tribes and the Washington Department of Archaeology and Historic Preservation. The FEIS will report the results of consultation.	4.9, 2.1.3.10, 9.2	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Lou Boliou	1102491	This letter is in response to the proposed Horse Heaven Wind Project—the plan to erect a 24-mile line of wind turbine generator "Eiffel Towers" atop the hills adjacent to the Tri-Cities, Washington. I am a retired nuclear technician and engineer, and have worked in both the DOE and commercial nuclear field. I also spent ~5 years maintaining the Arizona State Air Quality Lab in Phoenix, Arizona, as an instrumentation specialist. I find this proposed plan to be egregious for multiple reasons. The first is that Tri-City residents have valid concerns about these environmentally destructive and subsidized part-time energy generators. It seems that, since this region is not politically in lock-step with the political monopoly on our western shores, we have little influence on the ideas promulgated by activists and special economic interests. One valid objection is the placement of these spinning monoliths so close to a growing city environment. The vast majority of large wind generation is established away from relatively large urban populations. Why is this project to be sited so close to our citizens' homes and businesses in one of the fastest growing cities in Washington? Many truly enlightened nations place their wind turbines off shore, as the winds are far more predictable and consistent. California is presently considering just that. Perhaps, the political and geographical divide of Western and Eastern Washington helped with this siting decision. Another factor is the maintenance cost of these wind turbines. Studies indicate the rapidly increasing use of massive turbine blade generators is becoming a mounting problem. These huge blades, made of composites, are largely non-recyclable or so expensive to maintain it makes the already expensive maintenance of turbine generators even less attractive. Yet, the political inertia pushes on with the old kick-the-can-down-the-road principle.	Land and Shoreline Use	Private and public entities own the land parcels within the Lease Boundary. As a result, the Applicant have to establish terms of agreement with the Lease Boundary landowners to develop and operate the Project.	3.8.11	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Wildlife and Habitat	Impacts to wildlife, including bird mortality during operation are addressed in section 4.6 of the EIS. Specifically Section 4.6.2.2, subsection *Turbine Option 1 and Turbine Option 2, Wildlife Mortality from Operation of Turbines* provides an assessment of the anticipated mortality of birds and bats from turbine operation. This section predicts that horned lark is the species most likely to be frequently impacted by the Project. Further details on wildlife collision risk is presented in Appendix 4.6-1.	4.6, 4.6.2.2, Appendix 4.6-1	n/a
			Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
Anonymous User	1102504	My wife and I firmly believe that this project would negativity impact the Tri-Cities region and there would be little or no long term benefit for the area. The Tri-Cities has the Snake and Columbia River Hydroelectric Dams and Nuclear Power being produced by Energy Northwest. The proposed wind project would have a long term negative impact on the Deer, Antelope, Hawks, Pheasants, Owls and a host of other wildlife. The migration habits of Geese, Ducks and other migratory birds not only could but will be negatively impacted and altered if not destroyed completely. There will also be a loss of revenue that will be felt by Wineries, and other Tourism Industries like Hiking, Birdwatching, and Biking, to name a few. The impact to these and other groups would be significant, and all for the production of unreliable and costly wind power that would not benefit this area but be sold to areas that are hundreds of miles away just for the sake of being able to say its "Green". This is a project for investors and companies only and not for this community. They will never have to look at these eyesores or deal with the waste that they create. Michael Fitzsimmons Kennewick WA.	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
Anonymous User	1102641	I am against the Horse Heaven Hills Wind Farm project. I am a licensed pilot and have enjoyed many hours of up draft flight along the proposed area of this project, as do many of the large birds of pray that soar along the ridge line. This project would prohibit my enjoyment and the birds of pray from their natural desire to soar and hunt for food. I fear that many birds will be killed and or injured because of this project. Next, as I live in Benton City,the visual aesthetics will depress my attitude and lower my property value. The movement of the blades during the day and the flashing lights at night will be very distracting and unnatural. Much of this project does not benefit our U.S. manufactures and sends our tax money overseas. Then the power is slated to go to the west side of our state. If the west wants this,then build it there, and keep it out of my backyard.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	Power would be transmitted to a purchaser under a contract with the Applicant. Such power purchasers could include any of the local or regional utilities, or commercial and industrial power users with potential off-takers having distribution outside of Washington state. The impact of wind farms on property values is addressed in the EIS.	1.2.1 and 4.16	4.16 - Discussion of Project impacts on property values
Anonymous User	1102738	I am a lifelong Tri-Cities resident, and have always enjoyed looking up to our ridge lines. I don't want to see huge wind machines with flashing red lights, also I'm concerned how the wind machines will affect birds. Please locate these machines away from the Tri-Cities.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1102748	My comments are in the attached document. Here is a link to the video of the swarming sandhill cranes mentioned on page 3. https://photos.app.goo.gl/bhhQCKMx47H5BFmB6	Socioeconomics	The Project would serve as a source renewable energy. This benefit is aligned with the State of Washington's goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Also, construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project. The Project would pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project. Additionally, an on-site concrete batch plant will be used by the Applicant.	4.14	n/a
			Air Quality	A substantial range of life cycle green house gas (GHG) emissions has been reported in the literature. In 2021, the United States Department of Energy National Renewable Energy Laboratory (NREL) published a comprehensive review and comparison of life cycle analyses (LCA) of GHG emissions from electric generation (Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update, accessed on February 23, 2023 at https://www.nrel.gov/docs/fy21osti/80580.pdf). The evaluation indicates that median reported life cycle GHG emissions from wind and solar photovoltaic electric generation, 13 and 43 g CO2e/kWh, respectively are more than an order of magnitude lower than median reported life cycle GHG emissions from natural gas, oil or coal-based generation (486, 830 and 1001 g CO2/kWh) and comparable to median life cycle emissions from nuclear and hydropower of 13 and 27 g CO2e/kWh, respectively. Natural gas, nonhydroelectric renewable resources (mostly wind), nuclear energy, and coal generate almost all the rest of Washington's in-state electricity. Natural gas is the second-largest source of in-state net generation, and it fueled 12% of the state's total electricity generation in 2020 (Washington State Profile and Energy Estimates, US Energy Information Administration as accessed February 23, 2023 at https://www.eia.gov/state/analysis.php?sid=WA#:~:text=Natural%20gas%2C%20nonhydroelectric%20renewable%20resources%20%28mostly%20wind%29%2C%20nuclear,of%20the%20state%27s%20total%20electricity%20generation%20in%202020). As a result, life cycle GHG emissions from the Horse Heaven project are expected to result in generation that is comparable to or less than other forms of bulk generation available from the grid. With respect to impacts on regional ozone levels, construction impacts would be temporary and the expected emissions of the main ozone precursors (NOx and VOC) are very small when compared with the overall inventory of countywide ozone precursor emissions. Mobile source emissions of ozone precursors are considered exceptional small relative to regional emissions and expected to have a negligible impact on regional ozone levels.	4.3	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	The EIS assesses the potential impacts to birds, including special status species such as sandhill crane, red-tailed hawk, and American white pelican in Section 4.6. The EIS provides recommended mitigation measures to reduce potential impacts to wildlife including special status species, bird mortality, and bat mortality.	4.6	n/a
Anonymous User	1102754	I am totally against these wind machines going up in the tricities! Take them over to the West side! They are ugly, expensive, bird killers!!!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1102757	I am not in favor of this project. It will be of no benefit to our area; build it next to the people that will benefit. It's a blight on the land, it destroys the appeal of this beautiful part of the County. It will have a detrimental economic impact on our property values. It kills birds. It's noisy. It causes fires when these fans overheat.	Socioeconomics	The Project would serve as a source renewable energy. This benefit is aligned with the State of Washington's goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Also, construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project. The Project would pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
Anonymous User	1102778	I am opposed to the Horse Heaven windmill project. Wind is not a reliable source of energy but I know you know that. What I don't understand is why you are willing to devastate the earth burying the used structures when their "life span" is complete. Is there really that much profit in it?	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1102812	Jobs: The wind turbines will not provide additional jobs or benefit the economy. Any jobs preparing the sites and constructing the wind turbines will only be temporary. The craft workers are transitory and will move on to the next project once work in this area is done. Esthetics: I chose to live at the base of the Horse Heaven Hills for the wide-open views of farmland, natural sage grasslands and wildlife living within. The wind turbines will change the landscape from its current natural beauty to an industrial wasteland. The red lights at night will create major light pollution which will lower my property value. Wildlife: The Antelope population that has steadily increased since introduction to the Horse Heavan Hills. They habitat has been a safe environment for the herd to raise young and thrive. I am concerned about the protected antelope population will be negatively impacted by the industrialization of their habitat. The avian and wildlife habitat will never recover.	Socioeconomics	The Project would serve as a source renewable energy. This benefit is aligned with the State of Washington's goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Also, construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project. The Project would pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Wildlife and Habitat	The EIS assesses the potential impacts to pronghorn antelope under the topic of Special status species. While, this species is not a state listed species or a priority species, it was included as a special status species due to the understood importance to Yakama Nation. The EIS includes mitigation measures specific to pronghorn antelope to manage potential impacts to this species as their range may expand into the the Lease Boundary in the future. The EIS also describes assessed impacts and mitigation to wildlife under Section 4.6.	4.6	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1102814	Les&Andrea Abercrombie 4817 Corvina St., Richland, WA 99352 South Badger homeowners opposing the wind farm. While we refrain from interpreting the science and facts beyond our area of expertise, there remain significant unanswered questions and poorly addressed conclusions. In a 2021 survey, 2,220 respondents and our partners indicated that they had unanswered questions regarding: The true efficiency of the benefit of this project when compared to the 93% non-emitting energy resources already provided by the Greater Mid-Columbia Region. The long-term economic benefits of selecting this technology over proven alternatives for a region that supplies 40% of Washington's non-emitting energy. The impacts to the $500 Million+ annually expended by consumers visiting Washington Wine Country's vast unencumbered viewshed. Compared to the relatively unseen energy infrastructure of our community, the proximity of the project to our population center creates a disproportionate burden to the region's nearly 300,000 residents. The infrastructure and resource needs of this project may result in reduced capacity for business development in more appropriate locations throughout the region. Light pollution through red, flashing aviation warning beacons - and the resultant safety factor of the mitigation strategy suggested for 'timed periods of inactivity.' Obstruction of migratory bird paths, negative impacts to wildlife livelihood, and permanent damage to wildlife habitat.	Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Energy and Natural Resources	The Project's Energy Natural Resources Section of the EIS includes recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage.	4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Socioeconomics	Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16 and Apendix 4.16-1	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	Include AVA in LSU
			Visual Aspects, Light and Glare	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.		Include AVA in Recreation
Anonymous User	1102816	I am commenting in opposition to the proposed wind farm project. The Mid Columbia already provides a significant amount of power to other regions via our dams and Columbia Generating Station. The windmills will ruin the beautiful views provided by the Horse Heaven Hills and affect the wine tourism this area is aggressively trying to market. Please reject this wind farm proposal.	Energy and Natural Resources	A forecast of regional electricity demand is presented in the Project's Energy Natural Resources Section of the EIS, which suggests that by 2041, the region could see a 22.5 percent increase in demand.	3.7.1.1 Power Generation and Demand	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	Include AVA in Land Use
cbarnard	1103467	I do NOT support this project. Windmills are an eyesore and we already have too many of them in eastern Washington. I'd like to see the ones we already have removed! The loss of agriculture land and the impact on wildlife is not worth it. STOP THIS PROJECT!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1103552	I oppose the wind farm project. I have been around wind farms for years. I hunt on a large wind farm in E. Washington on a regular basis, I have seen the birds that are killed by these wind turbines..Eagles, Hawks, Geese, Ducks, all types of Birds of Prey even small birds. I am not talking 1 or 2 birds, but many on the ground.. especially after a foggy stretch of days. I have also seen first hand the damage when these turbines have problems and the amount of oil that runs down to the base of turbine...looks like hundreds of gallons. I honestly believe that there is a reason that the concrete pads, as well as the amount of dark gravel spread out around the base of these wind turbines is so large...is to hide the oil spills (dark oil...dark rock), after a spill, the turbine is repaired and more dark rock is spread on top of existing oil covered rock...Not only are wind turbines an eye sore, they just do not perform like Nuclear, or Hydro. Has anyone seen where these turbines go to die? The amount of natural habitat destroyed by the roads leading to and from these, as well as the size destroyed by each "pad" is astonishing. Has anyone discussed the size/location of the sub stations where this "power" is held? Another major piece of land, as well as another eye sore. ...Where is GreenPeace, PETA , and the tree huggers when they are really needed?	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1103610	Comments attached	Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
			Socioeconomics	Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16 and Apendix 4.16-1	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
			Land and Shoreline Use	An analysis of setback requirements listed in Benton County Code 11.17.070 are presented in Table 3.8-2A: Benton County Zoning Ordinance Consistency Analysis. For any aspects of the Project's design that are not in alignment with Benton County Code (BCC) 11.17.070 Growth Management Act Agricultural District (as in effect at the time of application), EFSEC may consider in the adjudication whether inconsistent provisions should be preempted, and if so, whether any conditions should be included to serve the purpose of such provisions. Prior to decommissioning, the Applicant would submit a Detailed Site Restoration Plan, per WAC 463-72-050, for restoring the site to its preconstruction character. This would assist in preventing conversion of a land use that is not in alignment with the Lease Boundary's current designation. The Applicant would be responsible for working with the landowner to return all agricultural land to its preconstruction status. If future site conditions or land ownership no longer allows for the land to be returned to agricultural production, the Applicant would submit a request to EFSEC for an alternative land use that would be in alignment with the Lease Boundary's preconstruction rural character and resource value. If the Detailed Site Restoration Plan requests an alternative land use, EFSEC may require that the Applicant provide additional mitigation to offset impacts from a permanent conversion of the land. The Project would financially support ongoing agricultural ownership and operations via its lease agreements with participating landowners. The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements.	Appendix 3.8-1, 4.8.2.4	n/a
Anonymous User	1103681	I am writing in support of the Horse Heaven Clean Energy Center (HHCEC). As a nearly lifelong resident of the Tri-Cities, I support the project because I believe that an "all of the above" approach will be required to mitigate, and perhaps even reverse, the effects that human activity are causing to our climate. I strongly support nuclear energy in all its forms, solar, hydropower, wind, and fusion when it becomes available. All of the forms of energy production have their adverse side effects, but I believe we should, and eventually will, do a better job of minimizing these. In particular, for the HHCEC, the towers and blades should be painted a beige or tan color to blend in better with the surrounding vegetation most of the year. I also think that the navigation hazard lights should only be turned on when aircraft are nearby. I don't mind looking at wind turbines during the day, but the lights are unnecessarily annoying at night (and they waste energy, anyway, if there are no aircraft to see them). Note that I expect to be able to see the turbines from my residence in Pasco. In fact, I can already see the Nine Canyon wind farm, and I've never heard any of my neighbors or visitors complain about it. Permit me to address some of the criticisms that have been leveled at the HHCEC. First, the notion that the turbines will affect tourism strikes me as totally lacking merit. I believe that nobody visits the Tri-Cities to look at the Horse Heaven Hills. They mostly come here for wineries, sporting events, water recreation, golf, and to visit friends and relatives. None of these attractants will be affected by wind turbines on the hills in the distance. I have no trouble visiting Ellensburg and Vantage even though both have wind turbines nearby, and I doubt that anybody else avoids those locations due to the wind turbines. When travelling in Europe, wind turbines are visible often, and they hardly draw a second glance. It wouldn't surprise me if someday the Tri-Cities becomes a prime ecotourism destination to see all of our carbon-neutral energy generation and storage facilities, including wind turbines. The dams and nuclear power plant already draw tourists. Second, the idea that it is somehow unfair to generate electricity in the Mid-Columbia that is then transmitted to the west side is a disingenuous. The bulk of the electricity generated nearby is already mostly used elsewhere largely without local complaint, and we're already suffering the side effects of that with salmon lifecycle impacts and nuclear waste generation. As I said above, these side effects need to be better minimized for all energy sources, and real progress is being made towards that. Residents of the Mid-Columbia region don't seem to have any trouble eating the halibut, crab, oysters, and cranberries that come from the west side, so how is sending energy west any different? Further, the local area will benefit economically from land leases and local taxes paid by the project. And finally on this point, once offshore wind turbine technology becomes economically feasible, I expect we'll have thousands of turbines installed in the coastal waters of Washington, Oregon, and California, thereby better sharing the impacts of energy generation throughout the region. Third, the criticism that agricultural land will be taken out of production is overblown. While the HHCEC is a huge project, only a small percentage of it will actually displace any agricultural activities. In fact, each turbine typically requires only 0.25 acre of land (http://www.energybc.ca/cache/wind2/www.nrel.gov/analysis/power_databook/calc_wind.html), or about 61 acres total for the entire HHCEC (plus any new roads that will be constructed). The rest of the 112 square miles of land can continue to be used for crops and cattle grazing or as natural scabland. Fourth, some argue that the project is not economically feasible. To that I say that if the project is able to attract private funding, it is evidently economically feasible enough. That's exactly how capitalism works. Thank you for your consideration. Sincerely, Gary E. Spanner, Ph.D., PE, CEcD	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1103712	Comments Attached	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1103793	I am in complete disagreement with the horse heaven windfarm, all of the decision making should not be taken away from the people of Benton county, the proposed windfarm would be 3 to 5 miles away from 10's of thousands of residents, nearly 5 times the TOTAL affected residents in Washington state today, with the downwind effects of a windfarm not being taken seriously into consideration, the climate change they create, the effects on local agriculture due to the climate change created. Herbicide drift that will blanket the Tri Cities from all the turbine created inversions of air movement either from residue in the dust from 120 miles of service roads or from applications to all the wheat farms that exist under the proposed wind farm. This will create health and welfare problems similar to what we had in the 80's and 90's when aerial applications of herbicides were detrimental to downwind agriculture, viticulture, and health of all people within 300 miles from wind inversions that exist TODAY, BEFORE the proposed windfarm inversions. This is one of the many problems the windfarm will create. our aquifers are getting low enough that 10% of my neighbors have had to drill deeper wells, the 250,000 gallons of water that scout energy will need for road construction would undoubtedly create more wells needing to be replaced. Who'll be responsible for all of these future problems created by a foreign company with highly subsidized, poorly planned, unreliable, overrated, unneeded, NOT green created power? The draft EIS is 1600 pages of regurgitation. The content of this report is not specific to our area and lacks relativity. falsely reports the effected residents in reference to distance and urban growth areas.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1103798	How will this project not negatively impact the migration of the sandhill cranes along the inland Pacific flyway? In February of each year, the sandhill cranes start appearing in our area here in the Tricities/Othello as they rest/feed and make preparations to continue on to their summer feeding grounds in Canada and Alaska. They fly right over the Horse Heaven Hills during the course of this journey. In the Fall, they reverse direction on their ultimate destination back to California, again passing directly over the Horse Heaven Hills.	Wildlife and Habitat	The EIS assesses the potential impacts to Sandhill crane under section 4.6.2.4. Species specific impacts have been included under Section 4.6.2.5. Based on bird mortality reports from other wind power project, sandhill cranes may be less susceptible to collisions with wind turbines due to their flight height. While sandhill cranes may be able to avoid interaction with turbines, the magnitude of the potential impact of the Horse Heaven Project on sandhill crane is rated as Medium, suggesting the Project could have measurable impacts on the local population although within the expected population adaptability and resilience.	4.6.2.4, 4.6.2.5	n/a
Benton County Public Works Department and Board of county Commissioners	1103829	Please accept the following DEIS comments from the Board of County Commissioners	Land and Shoreline Use	The submitter's comment letter is acknowledged. In response, a discussion on the impact of agriculture on Benton County's economy is presented in 3.8.1.4. The Applicant would be responsible for working with the landowner to return all agricultural land to its preconstruction status. The Project would financially support ongoing agricultural ownership and operations via its lease agreements with participating landowners. If future site conditions or land ownership no longer allows for the land to be returned to agricultural production, the Applicant would submit a request to EFSEC for an alternative land use that would be in alignment with the Lease Boundary's preconstruction rural character and resource value. If the Detailed Site Restoration Plan requests an alternative land use, EFSEC may require that the Applicant provide additional mitigation to offset impacts from a permanent conversion of the land. The Benton County Comprehensive Plan and Benton County zoning ordinance would continue to guide land use development within the county.	3.8.1.4, 4.8.2.4	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Opposition	EIS does reference "West Richland" and "unincorporated Benton county". For example, section 3.7.1: "The county is predominantly rural and agricultural in nature, with unincorporated areas making up most of the jurisdiction. The Lease Boundary is south of the Tri-Cities: Kennewick, Pasco, and Richland, Washington." or, section 3.8.1" "The incorporated cities within Benton County include Benton City, Kennewick, Prosser, Richland, and West Richland (Benton County 2021a)."	n/a	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project. The Applicant has provided a Transportation Impact Analysis, Appendix X of the ASC. EFSEC will require supplemental analysis, prior to construction, once haul routes for oversize or overweight components, are finalized. Additionally, as noted by the Applicant in their ASC, the Transportation Study provided as Appendix V of the ASC would be verified and updated to include detailed condition assessments of roads to be used, structural assessments, and plans for improvement and maintenance. The Applicant would coordinate with EFSEC and Benton County, to identify a qualified third-party engineer who would document road conditions prior to construction and again within 30 days after construction is complete or as weather permits. All road improvement and construction would be performed in conjunction with Benton County Public Works requirements following Benton County Standards. The Applicant would maintain new access roads to access the turbine structures during operations.	4.14	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary. With respect to impacts on regional ozone levels, construction impacts would be temporary and the expected emissions of the main ozone precursors (NOx and VOC) are very small when compared with the overall inventory of countywide ozone precursor emissions. Mobile source emissions of ozone precursors are considered exceptional small relative to regional emissions and expected to have a negligible impact on regional ozone levels. The Harvard study of 0.24 degrees Celsius warming is theoretical model that is based on the assumption that one third of the continental U.S. is covered with enough wind turbines to meet present-day U.S. electricity demand. The Horse Heaven project is a minuscule fraction of the total area included in the Harvard estimate and even if the modeled result were true, the relative magnitude of the purported temperature change would not be expected to result in a measurable change in local climate conditions.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
Anonymous User	1103861	My husband and I live in the Horse Heaven Hills and would be one of the closest residences to the proposed turbines. There are so many reasons why this project should not move forward, but I will address only a couple here. 1) Lack of transparency with the community. It is not surprising, but rather alarming, that there are still so many in the Tri-cities area who don't know about the Horse Heaven Wind Farm project. I personally don't know anyone locally, who does know about the project, who is in favor of it. A project this large that has an effect on the citizens of this community in so many different ways, should be put before the local residents as a vote. Where is democracy if something like this can be imposed on a community without the said entire community having a say? 2) We have been amazed at the number and variety of birds as well as deer up here in the hills that we have witnessed. We have an owl who visits frequently and hoots right outside our home at night. The hawks are beautiful to watch as they ride the currents through the ravines looking for their next meal (natural rodent control). Just a couple of weeks ago, I witnessed a large flock of Canada geese flying up the ravine that is near our home, likely on a stopover on their migration journey. I watched as they flew towards the south, slowly gaining altitude as they jostled for their place in their "V" formation. This all took place at a low elevation right over the area of proposed turbines! Another recent day, hundreds of white snow geese were camped out in the field behind our home, again in the proposed area. Geese have long been a favorite of mine, as I grew up on a farm and witnessed so many migrating flocks during harvest season each year. These hills are abundant with geese finding a place to rest for the night and I often see these low flying flocks as they are coming in or leaving on their journey. We are most definitely in a migration path where the birds can enjoy the nearby waters of the rivers as well as the Horse Heaven farmlands for a safe place to stop over. A wind turbine farm (especially one so many miles in length) would be a huge detriment to all the wildlife patterns and alter the natural ecosystem of our area. Again, there are so many more reasons why a wind turbine farm is not a fit for this urban and suburban location. It would be a forever disruption to the beautiful skyline that this area is known for, and a complete visual distraction with the hundreds of blinking red lights at night. Health concerns regarding the visual, audio, and mental effects of the turbines have not been thoroughly studied, but should be taken into account when considering the large number of population in close vicinity to this project. I respectfully ask that ALL of these points are taken into consideration and that you will truly listen to the community's concerns in this matter.	Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
raygor	1103903	The proposed wind farm will inhibit the future growth of the city of Kennewick. Kennewick is bound on the north by the Columbia River; on the east by Finley; on the west by Richland and the south by the wind farm. South is the only direction for future growth for Kennewick and we don't want a miles-wide wind farm inside the future city limits. The wind farm will create a dead zone for future expansion of Kennewick. The proposed wind farm will further disrupt the view of the foothills south of Kennewick, which I currently view and value. Cluttering the hillside with more windmills will ruin the view for me. There is documented evidence that the swishing noise from the windmills affect humans and wildlife. Large numbers of birds are killed by the rotating blades and will drive out other animals by the background noise of the windmills. The proposed wind farm will represent a negative "welcome to Kennewick" visual for traffic entering Kennewick, which is likely to discourage visitors to Kennewick and other nearby towns. This negative impression will likely affect tourism to the area. During the summer months there is an increase in ozone levels in south Kennewick. The EIS for the proposed wind farm does not address this problem. Will the proposed wind farm prevent the "scouring out of ozone and other air pollutants" by reducing air movement in the area? If the wind farm is allowed to proceed, Scout Energy needs to address eventual dismantling and removing the eyesore they are creating. A removal plan and escrow account for funding the removal needs to be established prior to operation is allowed. Many times windmill farms are simply abandoned. The current leadership and government of Washington state are opposed to using petroleum products, which are used in large quantities in the windmill generators. Oil spills and windmill fires are common damage the surrounding area. How can this wind farm be allowed by Washington state?	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed. The project is not expected to result in a discernable change in the overall broad scale ventilation effect of air movement in the region.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions. For aspects of the Project's design that may not be in alignment with Benton County Code 11.17.070 Growth Management Act Agricultural District or the Benton County Comprehensive Plan, the Washington Energy Facility Site Evaluation Council (EFSEC) would review discrepancies through an adjudicative process intended to resolve disputes between the local government and Horse Heaven Wind Farm, LLC (Applicant).	3.8.1.2, Appendix 3.8-1	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1104047	Please do not allow Scout Clean Energy to ruin our most beautiful Horse Heavens by constructing wind turbines. I own a 200-acre farm that boarders the base of the hills where turbines are proposed to be erected. I worry this could lower the value of my property in years to come. I'm concerned about the flashing lights that will be nothing but a nuisance at night, they are monster eyesores, I truly believe they will affect habitat, and so goes the list of complaints. I was strongly approached by Scout Clean Energy when they first came to our community hunting for pathways to transport their power to the power gird. At first it seemed like it was a good idea, since this country is working on cleaning up the environment. Once I really started to look into this and after legal advice and advise from community developers, I felt it best I run and run fast. I do not feel Scout Clean Energy has this community in heart, what they have at heart is an opportunity to line their pockets and the pockets of their investors. They came to our area scouting for a sweet place to install turbines that we really don't need at this time. We have abundance of power (sources nuclear, hydro, solar) already in our area. When the time arrives in this community where we must have more power to supply to the consumer, I'm sure you would have the backing and support from all in this community. But why? Why do we need to agree to this when it won't really do much for the area. Oh sure, a few hundred jobs for a few months, but will they bring in their more experienced installers from other states? Then when it's all said and done, we will have just a hand full of local people to oversee their turbines. Please listen to the heart of the people who care about the beauty of this land. Please put this on hold until we NEED more power here. Scout can put their Turbines up where the need is. The picture below is a morning sun rise this past September. If Scouts gets their way, I will be looking at windmills on my morning walks. For shame! Thank you.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1104076	The planned Horse Heaven wind-farm will destroy the iconic views of Mt Adams and Mt Hood from the Badger Mountain Park	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations including recreation areas as well as strongly altering the area's landscape character.	4.10	n/a
Anonymous User	1104154	Dear Energy Facility Site Evaluation Council: Re: Scout Clean Energy Horse Heaven Wind Farm Scout's proposed wind farm will have negative consequences for the endangered Washington state ferruginous hawk and environmentally sensitive areas the hawk needs to be able to hunt and nest in. And as I have stated before in my previous comments submitted to you, Scout has NO MEANINGFULLY COMPENSATION proposals nor any real mitigation efforts for any negative effects suffered from their proposed wind farm for the hawk. The U.S. and Wildlife Service estimates that between 140,000 and 500,000 bird deaths occur at wind farms each year and the most significant threat is posed to species of large, threatened and high-conservation-value birds such as the Washington state Ferruginous hawk. Please do not approve this industrial sized wind farm. The endangered Washington state Ferruginous hawk should not be sacrificed to meet the green energy goals set forth by the governor. Respectfully, Kathryn Knutson Furnace Canyon Ranch 1333 Hains Avenue Richland, WA 99354 kknutsonwa@gmail.com	Wildlife and Habitat	Impacts to ferruginous hawk are addresses in section 4.6.2.4 of the EIS and species specific mitigation measures are included under section 4.6.2.5.	4.6.2.4, 4.6.2.5	n/a
Anonymous User	1104185	Regarding Tri-City Herald article titled: "Here's your chance to say what you thinks of this huge Ti-Cities wind farm": January 31, 2023 I am a concerned resident of Kennewick, WA, in Benton County. I feel we are not being heard by EFSEC and fear we may be forced into a wind farm that doesn't benefit anyone. Further, I do hope our elected Governor Inslee is listening. We think the final decision whether to move forward with the wind farm project should be up to the people who are most impacted. We are telling you all "NO!", we don't want the project located here and for some really compelling reasons. It would be smart to listen to the people who know the area best. While I do agree with the valid environmental impacts sited in the Tri-City Herald article of: the loss of agricultural land, the negative impact of our wildlife, and the scaring of our beautiful skyline of the "iconic Horse Haven Hills" , which should be enough, I would like to reiterate some other compelling reasons why this project should not move forward in this location. The fact that the project would be non-productive for long periods of time, according to Benton PUD, should be a very compelling reason. It also says, even when the turbines are more productive in the summer, it coincides with times that our hydropower is at maximum levels and is not as much help, needing other generating technologies and resources, as well. This is concerning. I can attest to the fact that the turbines are not and have not been producing since last summer, in general, firsthand, as I live on the south ridge of the city and can see the turbines that presently reside there everyday. It's true, they are barely turning or do not turn at all rendering them non-productive due to the lack of wind. Why add more turbines compounding waste and abuse? I also agree there are several better locations in Northwest Washington that need to be explored for this wind farm. I think it would be way more productive if it were closer to the ocean or in the ocean, like our US eastern coast, where the wind blows regularly. Isn't that the point? In addition, I think EFSEC's proposed location, "within a half mile of our homeowners" is appalling, that proposal should be miles from homes, wherever it ends up being located. Finally, if the lack of conducive weather rendering an unproductive project isn't enough reason to relocate the project, here are a few more: -Concerns of a complete, well thought out project plan and follow through from beginning to end: I'm concerned that there is no plan or money to maintain and remove these giant turbines in a few years when they become obsolete. Is there a viable plan in place? If so, I sure haven't heard anything about it. But I do have some food for thought: I read a news article about a Southern California wind farm that is obsolete with no plan or even any idea what to do about it now! And then I can't help but compare this wind farm project with our Hanford headache. The long overdue "promised" cleanup of nuclear waste is being put off for up to 75 more years. It won't even happen in most of our lifetimes…and maybe not at all. It's just another example of incomplete, poorly planned projects! You see why we don't trust in "promises". Why continue to place more burden on the Tri-Citians? Let's share these projects throughout the state. -Benefits to Tri-Citians: We will get little, if any benefits. While we are all for going "green" and doing our share for the climate, which can be seen in the many projects already in place here, we don't see an advantage to anyone with this project in this area. Please relocate the wind farm to a better, more weather conducive area, where people will actually benefit from it. Plus, we aren't hurting for jobs here and the "local" tax revenue is in question. Define local… Thanks for your attention. Leann	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Socioeconomics	Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16	n/a
Anonymous User	1104261	I support the transition off of fossil fuels. We need wind, solar and other non carbon emitting forms of energy to power our world. It is so late already. The planet is in peril and it is past time to act. Thank you	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1104270	pls. see attached	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
Par Pacific	1104278	Par Pacific / US Oil is in the process of developing our own hydrogen and sustainable aviation fuel projects. Supportive of the Horse Heaven Clean Energy Center project.	Agreement with the Project	Comment acknowledged.	n/a	n/a
WSDOT	1104290	WSDOT has reviewed the proposed project's DEIS. Our comments are attached (PDF).	Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project. The Applicant has provided a Transportation Impact Analysis, Appendix X of the ASC. EFSEC will require supplemental analysis, prior to construction, once haul routes for oversize or overweight components, are finalized.	4.14	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1104298	pls see attached	Wildlife and Habitat	As the final turbine layout was not available at the time of writing the EIS, the EIS applied conservative assumptions to estimate impacts to wildlife. For example, to calculate the potential indirect habitat loss through sensory disturbance, the 0.5 mile disturbance buffer was measured from the edge of turbine micrositing corridor so that impacts are measured regardless of turbine location.	4.6	n/a
			General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
Anonymous User	1104310	I was born and raised in Kennewick. I am a tax payer, an Army and Navy veteran. Do not put those windmill in my backyard. I live on Fair VIEW Loop which is off of Summit VIEW, but not on the nearby streets called Grand VIEW or Clear VIEW. See a theme here? We spent our hard earn dollars to get this VIEW and you want to ruin it so you can sell excess power to California. No! Eastern Washington is flush with truly green energy from Hanford and the dams. We don't want it, we don't need it, do your job and stand up for your constituents	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1104329	We are concerned about how tall the wind turbines will be and the visual impact that they will have from the Tri-Cities. Also concerned about the increased fire danger and the millions of gallons of water needed for the project.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a
			Water Resources	The EIS includes estimates for water usage for construction and operation phases in Section 3.4.1.5. An estimated 120 million gallons of water is required for Project construction. Project operation is estimated to require 5,000 gallons per day for facilities and 2,025,000 gallons annually for solar panel washing. Impacts to water are assessed in Section 4.4 and no significant unavoidable adverse impacts were identified.	Section 3.4.1.5 and 4.4	n/a
Anonymous User	1104341	Not only are these things an eyesore they will kill large amounts of birds, which always seems to be overlooked. I'm against this project.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
pmstauffer	1104223	All options need to be considered: the DEIS only looks at a full build-out of the wind farm with 244 turbines and some solar, or "no action". The huge environmental costs are not fully considered; a better alternative is to emphasize more solar. The "face-plate capacity" cannot be the most important factor, the environmental impact has to be the focus in the Environmental Impact Statement.	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
Anonymous User	1104413	Benton Clean Air Agency would like to comment because these activities may cause possible fugitive dust emissions, we would like to take this opportunity to provide information to ensure that the applicant takes reasonable steps to control the dust from his/her project. The Benton Clean Air Agency (BCAA) requires the applicant submit a Proof of Contact: Soil Destabilization Notification for this project prior to any excavation/construction taking place. This will ensure that the proponent has the ability and resources to control fugitive dust emissions that may be created as a result of construction activities. This will also inform them of the regulations and requirements of the BCAA. Additionally, a written dust control plan must be developed and maintained for all soil destabilization projects and must be readily available upon request by the BCAA. Part of this plan is submitting the name of at least one person for the project so that the BCAA has a point of contact should we receive any dust complaints from the project. The Soil Destabilization Notification form can be found and submitted on our website, www.bentoncleanair.org. Benton Clean Air Agency is also aware that this project may include sources of air pollution such as a concrete batch plant, aggregate processing, and rock storage on site. Washington Administrative Code (WAC) 173-400-110 New source review for sources and portable sources, including the operations described above, may require: (2) Approval requirements. (a) A notice of construction application must be filed and an order of approval must be issued by the permitting authority prior to the establishment of any new source … Benton Clean Air Agency Regulation 1 requires that sources complete a Notice of Construction (NOC), submit the appropriate filing and engineering fees, and receive an approval to operate prior to operation of the source.	Air Quality	Comment noted - EFSEC will include a requirement that a Proof of Contact: Soil Destabilization Notification be submitted to both EFSEC and BCAA	4.3	Add the following mitigation measure: Applicant shall submit a Proof of Contact: Soil Destabilization Notification to both EFSEC and BCAA at least 90 days prior to commencement of construction.

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Anonymous User	1104418	Dear EFSEC Council Members, I am writing once again, respectfully, in opposition of the Horse Heaven Hills Wind, Solar, and Battery Project. Let me be clear, I never saw myself opposing a climate action project in my lifetime. When I relocated back to Eastern Washington from San Diego in 2020, we purchased a home with a view of the 9 Canyon Wind Project to the South East built by a local corporation, Energy Northwest. We purchased a geothermal home paying $50,000 more for geothermal to reduce our footprint. My husband and I recycle, like our neighbors in our geothermal community, and have been donors to the Nature Conservancy for many years. We care about conservation and climate change. We believe there is simply a site conflict given the on-going conservation efforts and priority species at stake in the Horse Heaven Hills, which we believe the recently released Draft Environmental Statement (DEIS) acknowledges, but not adequately enough. We also believe that the sheer size and proximity to existing housing and a significant population ought to raise eyebrows. Not just because the site chosen abuts economically underserved communities, such as Finley and Benton City, but because these are treaty lands of those often politically disenfranchised and dismissed by large corporate interests. I believe we ought to be an actual ally not a performative one to our indigenous Nations. Finally, the Out of State Developer has yet to show significant benefit in lowering our community's or WA State's footprint that is specific to this location, and so it is our conclusion they can find another more suitable location. A few short-term union jobs is not a sufficient benefit when the project obliterates the higher value of conserving native species and habitat. Such statements by Scout Clean Energy is using labor to silence conservation concerns, and is a clear political ploy. It only adds insult to potential injury. Analysis and work needs to be done prior to siting of future projects to preserve habitat connectivity and to analyze the cumulative impacts of the 38 or more such projects that are in the pipeline. We understand that funding for WA Fish & Wildlife has been made available for this purpose, but not in time for considerations regarding this project. We believe these concerns are truly at the heart of opposition to this project, and it gets lost in the politics of the day. But at the end of the day, no matter how one feels about the solutions for climate change, when a climate action project conflicts with conservation, communities must stand up because the State Environmental Policy Act (SEPA) only makes a statement in favor of conservation, it does not have teeth without community action, which is unfortunate. And as a result, people, like myself, must spend so much time and energy fighting for what in word is given priority, but is so easily ignored by corporate developers unless local voices speak loud enough. And are considered and heard. We believe that Scout Clean Energy is an out of State Corporation that is tone deaf to local conservation efforts, and that showed when they initially attempted to fast-track their application without an Environmental Impact Statement skirting local concerns and permitting. In fact, a proper analysis of impact cannot be performed given that they have failed to give locations of the 150 larger or 244 smaller turbines they have proposed. In this regard, their application was incomplete, and makes sound scientific analysis impossible. Our community, with a diversity of views on this, is largely in agreement that Scout did not do their due diligence. As the Draft Environmental Impact Statement notes there are 20 priority species in the stretch of land proposed and two of those are endangered: The Sandhill Crane and the Ferruginous Hawk. We are in agreement, that no matter how community members may differ on climate action, we agree that due to conservation conflicts, this is quite simply a poor site for this project. Many in our community are in agreement with the letters written to you by Mr. Ritter, the Biologist who is also the site lead in the State. We would like to see the project scaled back to solar only and moved further to the South West away from the ridgelines. Our community is unique with three rivers and associated wetlands along the Pacific Flyway. We regularly see Golden Eagles and other migratory birds as well as Sandhill Cranes flying overhead. People here pay attention, care about conservation, and value the efforts made to preserve our birds and wildlife. A love for the natural world is not exclusive, but very human. We have a history of cooperation and a clear history of producing and valuing clean energy. This project is just sincerely tone deaf to this. When I first heard of this project, I almost dismissed those opposed because I didn't fully know what was at stake. The only thing that gave me pause was how close it would be to current housing communities. I began researching the conservation claims being made, and what I found blew me away. I volunteered my time to create a nonprofit organization with a mission to preserve balance with conservation in the Tri-Cities, and I helped build and provide content for the website: TriCitiesCARES.org. CARES stands for Community Action for Responsible Environmental Stewardship. You see we know that this won't be the last time we'll have to fight an industrial project. We know we have to be proactive as a community to protect on-going conservation and further its efforts and education and outreach will be necessary into the foreseeable future. The content for our website was not hard to find because of the work already done by WA Fish & Wildlife from maps to information on all the priority species in the area, and information available via organizations, such as Conservation Northwest, and the Northwest Native Plants Society as well as all those partnered as part of the three State Arid Lands Initiative. I was quite frankly astonished that a climate action company would have done so little homework regarding conservation efforts given that the whole purpose of their work is to reduce coal fire dependence and help save the planet. But what are we doing if we're disregarding significant conservation efforts in the process? It's like saying, "Screw the shrinking shrub-steppe habitat and all those species that are a part of such an ecologically diverse ecosystem, we're trying to save the planet!" I think it is an assumption. One that I will admit to having at one time myself, that sagelands are empty flyover spaces. The truth is they're not empty. Not any more empty than the evergreen forests we all love, and not any less worthy of conservation and protection. Please, heed the words of the biologists that know. Look at the Arid Lands Initiative. Look at the information we've shared and the links via TriCitiesCARES.org. This really isn't a conflict over solutions to climate change. That is a distraction from what really is at stake. It is a conflict between two worthy values–climate action and conservation. And I urge you to heed SEPAs words and give them teeth in this instance. If this project weren't threatening habitat connectivity, migratory birds, and many priority species, I would be focusing my volunteer time and that of TriCities CARES on getting wildlife crossings for the newly returned Pronghorn in the Horse Heaven Hills. I would have energy to focus attention on more public education regarding the diversity of our native shrub-steppe, as well as working to create more permanent green space protections including working with Farmers and local politicians to create incentives to return farmlands to shrub-steppe. This would include education on farming practices that allow for the return of prey species, such as the at risk Townsend's Ground Squirrel, that burrow homes for the Burrowing Owls and provides the preferred diet of the Ferruginous Hawk during breeding. We'd be looking for win-wins in the interest of conservation instead of just fighting for what should just on-its-face receive protection. Conservation is preserving the natural beauty of our communities, and if I'm guilty of that then I'm happy to have that on my rap sheet. Guilty as charged. Besides my concern about conservation being paved over, I'm concerned about the proximity of this project especially after reviewing the DEIS. I've never seen a project this size placed so close to populated areas, especially a community of 300,000 people. This is still a concern as the Draft EIS seems to allow for turbines to be within .5 miles of houses on non-leased lands. The accepted standard is 2 miles from what I can find to avoid being so close that sound, flicker, and night lights do not disrupt people's health and quiet enjoyment of their homes. And many in our community were led to believe, who will not read a 1200 page Draft EIS report, that the turbines will be 4 miles away. The proximity to existing homes is my secondary concern, although those who are in .5 miles of leased lands probably count it as more of a priority. Nobody wants to live that close to these things no matter where you live or how dedicated you are to climate action, so distance to populated areas does matter. Projects of this size ought to be further away in my opinion. I think it is a reasonable consideration. Finally, I'm opposed because there is no long term benefit to the State of WA, or to our local community. As a community, Eastern WA is 96% dependent on green sources of energy with surplus being exported at the moment. As an initial skeptic to smaller, cleaner, more safe nuclear power, it is a way forward if we can focus efforts on clean-up from mistakes made in the past generations ago. The energy from this project is not intended or promised to us, but could go out of State. I do understand why this would anger our local community because it sets the precedent that outside corporations like Scout Clean Energy, who are tone deaf to the value of these lands, the beauty of our landscapes, maintained largely by historical cooperation with WA Fish & Wildlife concerning conservation and development, can land grab for their personal profit to the detriment of both conservation and the look and feel of our local communities. There must be balance with all kinds of development no matter their good intentions because they tend to be ruled by profit NOT: 1. Impacts to the environment since nobody on the Board, or invested in the corporation lives locally; 2. Impacts to the lives of people they don't call neighbors. Due process is still an important value in this State and Country, and attempts to skirt it, must be checked. I humbly ask that you check Scout Clean Energy, by limiting this project's scope in the interest of conservation. There are clear precedents for this, and it is quite simply the right thing to do for our community and for all Washingtonians. I leave you with a quote from the father of Conservation and from William Shakespeare (respectively): "Like winds and Sunsets, wild things were taken for granted until progress began to do away with them." –Aldo Leopold "Nature makes the whole world kin." –William Shakespeare After your decision, I will continue to do volunteer work in the interest of conservation, but I hope that your decision is in conservation's interest, so we can have a strong foundation from which to continue our work here locally. Kind Regards, Jessica Percifield Henry Volunteer at Tri-Cities CARES Former Board Member Tri-Cities C.A.R.E.S. – Community Action for Responsible Environmental Stewardship 501(c)(3) Nonprofit powered by volunteers. Mission: We support local conservation of wildlife, their ecosystems, and local decision-making to preserve the picturesque natural landscapes that make our communities unique, healthy, and beautiful.	Wildlife and Habitat	The EIS provides an assessment of potential impacts to wildlife, including special status species and species, in Section 4.6. The assessment of impacts to wildlife considered precautionary principles when characterizing impacts, meaning that conservative assumptions were applied when estimating and characterizing impacts given the uncertainty in Project layout, baseline conditions, and existing science on the impacts of wind power on wildlife. Recommended mitigation measures were developed to require the Applicant to collect additional information on wildlife use of the Lease boundary when completing final design and develop adaptive management approaches, in consultation with regulators, to manage impacts.	4.6	n/a
			Socioeconomics	Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income. Power would be transmitted to a purchaser under a contract with the Applicant. Such power purchasers could include any of the local or regional utilities, or commercial and industrial power users with potential off-takers having distribution outside of Washington state.	4.16	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the Final EIS
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	Revise FEIS to provide distances actual distances from wind turbines to closest residences, not just set-back distances.
			Public Health and Safety	Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
pknana	1104523	Save the Ferruginous Hawk	Wildlife and Habitat	The EIS was developed based on a review of available literature and in consultation with WDFW regional biologists and experts (See Sections 3.6 and 4.6). Ferruginous hawk occupy a variety of habitats seasonally and undertake migrations to and from winter habitat. As such, there are multiple sources of data that provide information on the distance traveled by birds. For example, Watson and Pierce (2000) provides information on distances traveled during the post-fledging dispersal and migration periods. Based on recent literature and information provided by State experts, core habitat for ferruginous hawk during the breeding season, when the species would be present in the Lease Boundary, includes habitat within an approximate 2 mile radius from the nest. This buffer is larger than recommended buffer sizes in published WDFW guidelines (e.g. Larsen et al 2004; USFWS 2021) based on data provided by WDFW experts. The EIS assigns a magnitude rating of high to characterize the potential impacts of the Project on ferruginous hawk (see 4.6) given the uncertainty in how ferruginous will respond to the Project and potential regional population level impacts from loosing breeding adults. Mitigation measures are recommended to reduce potential impacts on ferruginous hawks. The mitigations measures recommended would require the Applicant to conduct additional surveys to update and expand on the current data available for the Lease Boundary regarding wildlife occurrence and habitat use (see Spec-1 through 13). The Applicant would be required to incorporate the results of pre-construction survey results into the final design (Hab-6) and develop management plans for approval by EFSEC. Specific to ferruginous hawk, Spec-5 requires the Applicant to site infrastructure outside of the 2 mile core area. If circumstances arise where the Applicant has designed infrastructure within this core area, Spec-5 requires that the Applicant provide the TAC and EFSEC with rationale for siting. EFSEC would provide final approval. In addition, if infrastructure is required within core ferruginous hawk habitat the Application would be required to develop a mitigation and management plan that outlines the potential impacts and new measure they will implement to reduce those impacts. Examples may be curtailing turbines when hawks are present. The mitigation plan would be developed by the Applicant in consultation with the TAC but approved by EFSEC. The mitigation measures in Spec-5 allow for adaptive management of impacts to ferruginous hawk as new nests could become active in the region. EFSEC is the state's regulatory agency that determines compliance with state laws and the terms set in the SCA. (EFSEC contracts with other state agencies for on-site inspections.) The Council has the regulatory authority to enforce compliance with state laws and the conditions in the SCA through fines and other actions. EFSEC continues this oversight responsibility through restoration of the site after the project is terminated.	4.6	n/a
Anonymous User	1104568	I just feel that the Tri-Cities is becoming energy manufacturing plant for the more populous west side of the state. We produce it, they get to use it. We have wide open spaces here in eastern WA that would do well for windmills and solar panels: why must this be placed in view of those who live here? Seattle wouldn't want it, Tacoma wouldn't want it, Everett wouldn't want it ~ well, guess what, some of here don't want to look at those impossibly tall windmills either. Our skyline may seem ugly to some (who are used to sunny palmy beaches or dark green trees in the mountains) but the desert/arid lands has its own beauty: why should we sacrifice it when there's lots of land available to build these elsewhere? I am opposed to Horse Heaven Hills windmill project.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Mark T	1104588	I have serious concerns about the proposed wind farm on our Horse Heaven Hills. The damage to our beautiful view of our hills will have many unintended consequences. Damage to our wine industry and tourism, noise pollution, damage to our native birds, dust and noise pollution, heavy trucks using our roads and plowing new roads into our pristine hills. I look around where other wind farms are in our area and find it unacceptable to plant more of the ugly machines. This is too close to our homes.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			Public Health and Safety	The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			Land and Shoreline Use	A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.		
Anonymous User	1104609	The proposed wind turbines will soon be old technology. There are new ones that are bladeless, more efficient, and less intrusive to the environment. Scout Energy is doing this project because of government subsidies which enable them to make money. If Scout Energy goes out of business, who is going to remove and dispose of them when they are outdated and no longer sustainable? Wind farms should not be close to urban areas. The Tri-City area is one of the fastest growing areas in the state. The proposed wind farm will take land that may be needed for future urban growth areas. The huge structures will be distractions to drivers on our freeways and roads. Nature is good for our health. The wind farm will destroy some of our local nature. The Horse Heaven and Rattlesnake hills are scenic views of the beauty of our region.Putting a large number of these huge wind4 turbines on top of our hills would be like putting large wind turbines onto Mt. Rainier--ruining the beautiful view of the mountain for the people of the Seattle area. The huge wind turbines will be an eyesore to those living nearby! They will destroy our beautiful views, destroy local natural habitat, and have a negative impact on wildlife, some of which are endangered. I believe that the decision of whether or not to approve this proposed wind farm should be a local county decision, not a decision by the state of Washington. If you did a survey or vote of local residents, you would be better informed on whether or not we are in favor of the proposed wind farm. I think you would discover that like me, most of us locals don't want the wind farm here! We have dams and nuclear power here in eastern Washington. We don't need the wind farm. Build it where you need the power. Thank you!	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions. The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. This includes voluntary applicants such as the proposed facility. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 and associated regulations. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout to choose to apply for site certification through EFSEC (RCW 80.50.060 (2)).	3.8.1.2, 1.2.3	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Question for EFSEC	Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Port of Benton	1104664	Please see uploaded document.	General - Question for EFSEC	SEPA guidelines and Washington Administrative Code do not specify that Draft EIS should be published in any other languages than English. However, EFSEC has completed their due diligence in notifying the public by publishing English and Spanish notices, and English and Spanish factsheets. See the HH SEPA public website for copies of those documents in the Draft EIS Documents pulldown menu at https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. Additionally, EFSEC phone number, email address and mailing address were provided in the notice of issuance of Draft EIS. EFSEC did not receive any requests for Spanish translation of Draft EIS during the public comment period.	n/a	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Recreation	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Public Health and Safety	Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the EIS.	3.7.1.1 Power Generation and Demand	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1104721	Horse Heaven Draft EIS NEPA/SEPA Comments Provided in uploaded 3 page .pdf file. Thank you.	Wildlife and Habitat	The EIS assesses the potential impacts to bird and bat fatality in Section 4.6.2.2 and notes that the Project is expected to result in mortality to birds and bats. To mitigate impacts from mortality, the EIS proposes mitigation measures Wild-1, which would require the applicant to conduct two years of operational mortality monitoring and apply the results to developing additional mitigation measures. Wild-1 has been updated to provide additional clarity.	4.6	Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied If thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013], curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities
			Public Health and Safety	Impacts from decommissioning the Project are difficult to depict accurately, as this work would occur up to 35 years after operations begin. The EIS indicates that impacts involving hazardous wastes would be similar to those impacts resulting from Project construction because the activities would be similar. Potential health exposure to hazardous materials are discussed under construction impacts in the EIS and incorporated into the decommissioning impacts. Risks associated with hazardous materials would be mitigated by the Applicant's commitments provided in Section 4.13.2.4 of the EIS, and include the implementation of an SPCC. The SPCC would specify the methods and destinations of offsite transport of hazardous materials.	n/a	n/a
			Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the EIS.	3.7.1.1 Power Generation and Demand	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character. Visual simulations, based on project engineering design, are included in Appendix 3.10-2 including views from residences, recreation areas, and travel routes .	4.10	n/a
			General - opposition	The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. There is no federal nexus for the Proposed Project, and therefore, NEPA is not applicable. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 and associated regulations. The Proposed Project is subject to Washington State Environmental Policy (SEPA), which has a similar rule under WAC 197-11-440(5). Scoping is the first step in the SEPA environmental review process, to identify issues and concerns related to a proposed project, and thus to assist with identifying potential impacts and alternatives to analyze in the EIS. As noted in Chapter 1 of the EIS, in accordance with WAC 463-26-025, on March 30, 2021, EFSEC held a virtual public information meeting to explain the process that would be followed for review of the proposal. Members of the public were given an opportunity to provide oral and written comments. The scoping comment period for this EIS was May 11, 2021 to June 6, 2021. Members of the public, government agencies, tribes, and other interested stakeholders were invited to attend two scoping meetings/hearings and to submit comments verbally or written on comment forms during scoping meetings or by email or surface mail. EFSEC received approximately 370 comments from private citizens, environmental organizations, public agencies, and tribal representatives during the scoping period. EFSEC reviewed and considered these comments when determining the scope of the EIS. The Scoping Report Memo can be found on EFSEC's website. The expedited processing under WAC 463-43" as noted in the EIS is in reference to the request for expedited initiation of permit applications, including the NPDES, air permits, and other permits. The Applicant withdrew its request for expedited processing, prior to the first public information meeting held of March 30, 2021.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
stomren	1104740	The visual analysis does not adequately consider the impact of turbine lighting during the operational period, specifically at night. Based on the elevation of the ridgelines and the height of the turbines, the aviation lighting on the towers will be unobstructed for a significant distance. Due to the sparse development to the south of the project area, these lights will have a high degree of contrast with the dark background, which will magnify the visual impact. A significant portion of the residences throughout Tri-Cities and the surrounding regions will have direct view of hundreds of blinking red lights. Based on review of the regional topography, this field of lights may also be readily visible for long stretches of US-395 north of Tri-Cities, I-82 south of Tri-Cities, US-12 and SR-124 to the east, and possibly I-84 in Oregon. Lights from the Lower Snake River wind farm near Pomeroy are visible along portions of SR-26 west of Colfax, in spite of separation of more than 25 miles. The rolling hills of the Palouse reduce the area in which those lights are visible, but the topography of the lower Columbia Basin does not provide the same advantage. The areas lying generally north and south of the project area in particular are low-lying ancient floodplains, with no features of sufficient elevation to limit the viewshed. These are also the areas with the highest population concentrations. In these areas without physical obstruction, the visibility of turbine lighting will only be diminished by atmospheric effects. Imagine creating a field of blinking lights that are visible from virtually every point from downtown Everett to downtown Tacoma. That's what this proposes.	Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations. Additional mitigation measures (such as using ADLS) recommendation will be considered.	4.10	n/a
Anonymous User	1104746	I am in line of sight of the proposed turbines. I don't want to continuously look at these turbines from my house. Very disturbing!!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1104781	I am opposed to the Horse Heaven Wind Project. With up to 244 wind turbines being 499 to 671 feet tall it creates visual pollution for the entire Tri Cities area. The site is located too close to homes. To protect human health from noise and shadow flicker, turbines must be a minimum of two miles from homes. The red flashing lights are annoying. We will no longer be able to watch the night sky while in the Horse Heavens because of the red flashing lights impact. 20 special species and the Pronghorn antelope are listed in the DEIS as being impacted by the wind project, including the state Endangered Ferruginous Hawk. I believe the solar only plan alternative submitted by the WA Department of Fish and Wildlife to protect the Ferruginous Hawk and all special species be considered. All turbines placed in the wildlife movement corridors and in shrub-steppe habitat must be moved or removed. I was a licensed raptor rehabilitator for over 30 years. I have first hand knowledge of the raptor deaths caused by wind turbines. We are already dealing with special species, species of concern and endangered species in the area encompassed by this project. There is no question the project will harm resident and migrating raptors and other wildlife. The low frequency noise, vibrations and shadow flicker will affect wildlife and create a reduction in the foraging, breeding and nesting areas along with disrupting wildlife corridors. The wind turbines increase the fire danger. They will limit the use of aircraft for fighting wildfires. Currently the only way to dispose of wind turbines is by burial. They are not recycled. Creating massive amounts of non-recyclable waste by trying to “go green” is unacceptable. Having the monitoring data recorded, compiled, and analyzed by the applicant rather than unbiased 3rd parties is placing the fox in the henhouse. This is unacceptable. Currently many residents use the Horse Heaven Hills for paragliding, hiking, running, birdwatching, hunting, mountain biking, wildflower viewing and many other recreational activities. Recreational Opportunities will be negatively impacted by this project. When it’s cold, the wind doesn’t blow. When it’s hot, the wind doesn’t blow. Wind turbines need wind to operate and the weather conditions in the Tri Cities are not conducive to wind being available during peak energy requirement times. It is not a reliable source of energy. Any solar installations and battery storage should be placed west of Hwy 395 and Interstate 82 out of the Tri Cities viewshed. The Tri Cities is a growing community. Placement of this project so close to existing development limits future growth. Property values near or within view of the wind turbines will be devalued. The spectacular views of the Horse Heaven Hills will be lost. Tourism will be negatively affected due to this loss. Please deny the permit for the Horse Heaven Wind Project.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area’s landscape character.	4.10	n/a
			Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan. Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS. The description of conditions within the Lease Boundary and evaluation of impacts was based on a variety of information sources including data presented by the Applicant, publicly available data managed by state agencies and science based organizations, and consultation with state agencies.	4.6	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Socioeconomics	Wind farms are not anticipated to negatively impact the property values of agricultural properties that host wind turbines. Project impacts on property values will be assessed in the final EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Energy and Natural Resources	Recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications is recommended as a mitigation measure as part of the Project’s EIS. Additionally, the State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state’s nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project’s high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1104784	See attached word file	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. The analysis area for the wind turbines extended out 25 miles in the EIS. The viewshed mapping in Chapter 4 of the EIS has been updated to show the correct maps which were included in Appendix 3.10-2 within the Draft EIS. Viewshed mapping was also updated to show additional contextual features as suggested. Additional viewpoints and visual simulations have been included in the Final EIS, no change was made to the format of the simulations.	4.10	Update turbine viewshed maps from Visual Technical Report with additional context information. New simulations included in updated analysis
			Wildlife and Habitat	The EIS provides a calculation of predicted direct and indirect habitat loss associated with the Project in Section 4.6. Direct habitat loss includes areas that will be removed due to infrastructure such as turbine footprint. Indirect habitat loss describes the loss in habitat tuction for wildlife due to wildlife displacement and sensory disturbance. Section 4.6 of the EIS provides an estimated area calculation based on a 0.5 mile zone of influence. The EIS provides offset ratios for direct habitat loss (See Section 4.5) and mitigation measure Hab-5 would require the Applicant to conduct studies to understand the project-specific indirect habitat loss and provide an approach to compensating for loss. The EIS includes a comparison of the potential impacts on avifauna from the two turbine heights. it is provided in Appendix 4.6-1.	4.6, 4.5, Appendix 4.6-1	Hab-5
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project’s high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project. Edits to 3.12 and 4.12 have been made to include additional analysis.	4.12	Include golf courses as part of recreation.
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project’s output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state’s nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project’s Energy Natural Resources Section of the EIS. This sections is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project’s construction, operations and decommissioning stage.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Noise and Vibration	Noise impacts are addressed in Section 4.11 of the EIS, including impacts to the 742 closest residences.	4.11	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values

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From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Morris371*	1104817	1. The overwhelming visual impact from this proposed Horse Heavens Hills wind farm is enormous, and I doubt if Tri-Citians can truly comprehend what the impact of the completed project will have on their quality of life. We have no visual mockups to show exactly where these behemoths are proposed to be, and the quantity of turbines themselves is not stated exactly, so the entire description and visual impact is cloudy at best. 2. The timing of this public comment period is so very contrived in favor of Scout Energy, they are trying to keep the very existence of public comments hidden from the public. Imagine beginning the public comment period days before the Christmas and New Year's holiday seasons are occurring ! Scout Energy knew this massive proposal would be a very hard sell to the people of Benton County, and the only previous in-person public comment event that happened clearly showed that over 80% of attendees were against this wind farm proposal from Scout Energy. 3. This very short comment period combined with the lack of public awareness surrounding this Virtual Public Comment process speaks volumes about how contrived this whole public information gathering activity is. This is by far the largest wind farm project ever proposed, and because of the scope and potential for permanent damage to the environment ; the micro climate of the TriCities ; the local and migratory birds, the animals, and the flora ; much more care, study, time, and expertise is clearly a necessity. Endangered species inhabit the Horse Heaven Hills and surrounding areas, and I would think that fact alone would summon the input from affected Federal Agencies. The State Legislature, Benton County Commissioners, and also a Referendum vote by the people of Benton County is in order. A recommendation from EFSEC to the Governor, for his decision is, too much power for one individual to have. 4. I fear that one bad decision will lead to another bad decision. The Governor and Senator Patty Murray did their own study on the Removal of the Snake River Dams, they also stated that alternative power generating sources had to be in place before the dams could be removed. As an aside, removing the Snake River Dams (a green source of valuable electricity) would seem to go counter to the need to provide enough electricity to convert from gas to battery powered cars and trucks. The power production from the 4 Snake River Dams is 933 to 1,000 megawatts, and the power production from the proposed Horse Heaven Hills wind farm is 1,150 megawatts, and the HHH wind farm proposal includes a large array of solar panels for electricity generation and massive structures for electricity storage. 5. In summary the HHH wind farm as proposed is a terrible plan, would do irreparable damage to the immediate and surrounding areas of Benton County, and permanent damage to the flora, wildlife, and quality of life for the Tri-Cities. Thank You, Lloyd Fred Lieske Jr. RPh, retired	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. The visual resource analysis includes a viewshed analysis which identifies how many turbines would be visible within the area of analysis. Visual simulations, based on project engineering design, are included in Appendix 3.10-2 including views from residences, recreation areas, and travel routes.	4.10	n/a
			General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds and endangered species, are addressed in section 4.6 of the EIS.	4.6	n/a
			Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	3.7.1.1 Power Generation and Demand	n/a
			General - opposition	Thank you for your comments; your concerns have been noted. The public comment period was held from December 19, 2022 - February 1, 2023, a 45 day period, as required per SEPA requirements for an EIS. Public scoping and the public review period was publicized on the EFSEC website and an announcement was mailed to those on the interested parties distribution list, tribes, and EFSEC's general distribution list. Public Notice was published in Tri-City Herald for the SEPA Scoping on May 12, 2021 and the Scoping Notice was posted to the SEPA Register on May 14, 2021. In addition, a virtual public information meeting was held on March 30, 2021.	n/a	n/a
Anonymous User	1104861	I ask that the wind towers and solar arrays be constructed in places in the Horse Heaven Hills that ensure the least amount of damage to habitat and migratory routes, including roads and other infrastructure, and to be sited to minimize visual impact. This project should be required to perform an analysis to show that it has done its best to reduce visual impacts while still being able to meet energy production goals. The draft EIS calls to redesign the project "where feasible" which allows Scout Clean Energy too much leeway. Please address specific concerns as identified by the WA Dept. of Fish & Wildlife and consider their recommendations as well as those of C.A.R.E. (Community Action for Responsible Environmental Stewardship). You may also want to consider scaling the wind project down and using the resources in places where wind will generate more power, such as Colorado. The Mid-Columbia can get the power it needs with new nuclear.	Visual Aspects, Light and Glare	Comment noted. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	n/a
			Wildlife and Habitat	The EIS assesses the potential impacts to wildlife in Section 4.6, including recommended mitigation measures. The measures were developed to require the Applicant to provide EFSEC with rationale and additional mitigation measures when project components are sited in sensitive areas (e.g. within core ferruginous hawk, migration routes). EFSEC would have the ability to approve the Applicant's plans or require the Applicant to make additional adjustments if their design/ mitigations are not considered sufficient.	4.6	n/a
			Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	3.7.1.1 Power Generation and Demand	n/a
Anonymous User	1104874	These are a horrible idea. The people who live in this are hate this idea. I don't know why you would force this down our throats. Please do not build them.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
psflatau	1105130	I oppose the construction of the Horse Heaven wind farm. The huge, imposing wind turbines are noisy while destroying the natural beauty of the landscape. Birds are killed indiscriminately including endangered species. Earth worms will no longer populate the soil in the vicinity of the turbines leading to depleted soils. This is an important agricultural production area that will become unproductive. All of this destruction to supply energy to out of state interests.	Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Land and Shoreline Use	The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021).	4.8.2	n/a
Anonymous User	1105149	Please see my attached document.	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	The EIS provides an assessment of impacts to bird from the proposal solar arrays including potential mortality. The citation provided in the comment references data collected from three solar projects in California: Desert Sunlight, Genesis Solar, and Ivanpah Solar. Of these projects the Desert Sunlight power project is a photovoltaic power station, similar to the solar facilities proposed at Horse Heaven. Ivanpah Solar and Genesis Solar energy projects are concentrated solar thermal plants. These facilities use reflective mirrors to concentrate energy on a central tower. Mortalities of avifauna at concentrated solar thermal plants are estimated to be higher than PV projects (11.61 bird fatalities/MW/year at PV projects and 64.61 bird fatalities/MW/year at concentrated energy projects [Smallwood 2022]). Bird deaths at PV facilities are typically from collisions with the PV panels, whereas mortalities at concentrated energy projects may occur from collisions but also include exposure to the zone of solar flux resulting in burning.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1105229	Please Don't Please leave this area Please give us peace, leave our beautiful mountains and prairies and lands untouched. We have the right to a beautiful view. No to Turbines In 20 yrs they will be obsolete littering our lands an expense to our kids, grandkids. Will you be maintaining? No Will you be paying for upkeep? No Will you come remove? No Get lost !! Turbines everywhere already. You will have to give count to the Lord someday.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Anonymous User	1105239	We moved here for the natural beauty, and turbines - especially in this size and quantity - greatly distract from that, not to mention the sight and sound pollution they bring. Easy money for the land owner and incentivized energy corporations, but not thousands of citizens who call this area home.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
Anonymous User	1105241	Hello, My name is Jacob Roy. I am both a farmer and a resident of Central Washington. I am writing to you in support of the Horse Heaven Wind Project. I have chosen to support this project because of two major concerns. One concern is climate change. Being a farmer, my life and my career are heavily impacted by the environment I live in and I can say with the utmost certainty, any opportunity we have to slow down the rate of climate change or stop it completely is an opportunity we should not pass by. The other reason why I support the Horse Heaven Wind Project is because of the resiliency this project will provide. Resiliency to our cities, resiliency to our state, and resiliency to our nation. The more we can diversify, as a nation, to produce electricity, the better. Energy resilience through diversified energy sources, such as this Project, will prevent grid disruptions and help to keep the lights on. I support the Horse Heaven Wind Project because it will reduce our usage of climate disrupting fuels while making our country, and grid, more resilient as we move into the future. Thank you, Jacob	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1105243	not in favor of an army or wind machines on Horse Heaven Hills: My first experience with a windmill was when I worked a job at the Bruce Nuclear Generating Station in Ontario Canada in the mid 90's. Each day, we drove past a huge wind machine. It was so huge and so cool looking. It was only one. Some days we would drive by and even with the windows of the car rolled up we could hear the blades dip toward the ground and it sounded like a jet was approaching. Back then, I thought it was neat. I owned 20 acres east of Brooks memorial in Washington state. I saw more and more of the windmill lights pop up in what I am assuming was the Biglow canyon wind farm, or Klondike III, or maybe something else. I did not think much of it. One night I was sleeping in my camper and noticed a faint red light reflecting off the walls. I could not believe it. If you consider the light source coming from the Biglow Canyon near Arlington Oregon, I was getting flashed from over 20 miles away as the crow flies! I thought wind power was neat at one time but an army of them blinking at the same time and all the other things I am learning about them. Not for me. I also read that a windmill near the plant I worked at all those years ago had lost a blade. Kincardine, Ontario I believe.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1105329	Greetings – My name is Patrick Grengs. I am writing in regards to EFSEC NOTICE: HHH Wind Farm Notice of Public Hearing and Request for Comment on DEIS / Horse Heaven Wind Project | EFSEC - The State of Washington Energy Facility Site Evaluation Council As a 30-year resident of the Tri-Cities, owner of 40 acres of farmland under cultivation (West Richland) I am writing to make clear my statement against any construction related to the "Clean Green" Wind turbine farm. My reasons are outlined below. First and foremost, wind turbines are not economically viable: •Wind power is intermittent – when the wind stops, the power must be provided by hot-standby sources. These include hydropower, nuclear, coal-oil-gas. •Every watt of power produced by base-plate wind must be supplemented by backup sources. At a minimum, this doubles the cost of wind power. •Additionally, the backup power (hydro, nuclear) will need to be on stand-by mode while the wind power is feeding the electric grid. •Wind turbines have a cut-in and cut-out wind speed. That is, the turbine will not generate power until the wind reaches the cut-in speed. The cut-out speed is the wind-speed where the turbine is brake-locked. As such, during very high winds, the wind turbines will not even be rotating; all the while, the blades are wearing out due to stress fractures. •The recent wind turbine debacle in Texas was just one example of where the failure of wind power results in catastrophic failure of the electric grid. Wind power is not "green" – although the wind is renewable the wind turbines must be replaced: •The standard windmill with a 2Mw baseplate generation capacity (those commonly seen throughout the U.S. with the 200' tower and 100' blades) requires a foundation consisting of 2,500 tons of concrete. Concrete is made from a mixture of cement, water, sand and gravel. The cement, 600k pounds in total, is created in a process that requires heat curing and the expenditure of fuel that generates 0.93 pounds of CO2 for each pound of cement. The windmill, before it generates 1kw of power, has already generated ~560,000 pounds of CO2. oThe National Ready Mixed Concrete Association says that, during production, each pound of concrete releases 0.93 pounds of CO2. ohttps://www.ecori.org/climate-change/2019/10/4/global-warming-has-a-co2ncrete-problem oIn addition to the concrete, you have the several tons of rebar reinforcement, plus the metal tower along with the gearbox and other components that must be mined, refined and fabricated. •All the components for a turbine must be transported by vehicles (trucks, trains) that require fuel which generates more CO2. •Wind turbine blades must be replaced every 15 years; they wear out like aircraft wings. Stress fractures break down the effectiveness of the blade which requires replacement prior to catastrophic decay. Germany is already experiencing the result of this as wind farms have been decommissioned due to known material degradation of the blades. Most of the turbines in the Columbia Gorge were installed during the period 2008-2010. These will need to be replaced no later than 2025. Watch for the online films of an ever-increasing number of turbine failures. •Offshore wind turbines need to be replaced more frequently due to the adverse effects of salt water. Every wind turbine currently in operation, along with the future construction of offshore turbines, five years out, will need to be replaced in 15 years. •See here: https://srsroccoreport.com/major-flaw-in-the-wind-power-industry-terrible-hidden-secret-the-wind-industry-doesnt-want-you-to-see-3/ •Wind turbine blades can only be "recycled" at exorbitant costs. Instead, government municipalities have taken in spent turbine blades; for this, they receive tax-credits and other State-incentive subsidies. Instead of burying them in landfills, the are piled up out in the desert or open spaces of sparsely populated areas – out of sight, out of mind. •Hydropower is 100% renewable. In Washington State, hydro is not classified as "renewable" – this is to mandate the construction of wasteful, economically bankrupt wind turbines and solar to meet politically-mandated "Green Targets." Consider the destruction of property values: •These huge wind farms destroy the scenic vistas and natural open spaces. They require orders of magnitude more land per kWh when compared to nuclear. •They reduce property values to homeowners and landowners because of their adverse effects on the environment and natural surroundings. •Knowing what I know about the false economics of wind turbines, I see them as a vast pollution across the landscape. Looking at the fundamental rational for wind turbines – to address so-called "Climate Change." •Whether the sea levels are rising or falling, glaciers are advancing or retreating, mean atmospheric temperature is increasing or decreasing; know this: the climate is always changing. If we lived in a static climate, this would be cause for concern. •"Climate Change" as advertised by the MSM and state scientists, is bunk – to wit, the 97% consensus is a fraud: oThe Cook study of climate paper abstracts and its resultant 97% consensus has been roundly discredited. oThe online climate survey by Doran, et. al, with its 97% results, when looked at mathematically, has similarly been revealed to be without merit. o10 minutes of research on the internet illustrates the 97% figure to be an arbitrary fabrication. •The sea levels have been rising at the rate of approximately 2mm per year over the past 150 years. That's one foot over 150 years. This is not an emergency. This is not a crisis. This is normal. •When 25+ years of IPCC reports slowly remove any notion of the existence of the Medieval Warm Period -- the premise of which would invalidate the necessity for AGW (Anthropogenic Global Warming) you must know that something aside from Science is taking place. •When 95% of all the greenhouse gasses consist of water vapor, and you cannot put a tax on water vapor ... and life-giving CO2 is labelled a pollutant, then you need to be assured that something is rotten at the very core of the Great Climate Change Fraud. •When children are used as tools to further the notion that Climate Change, as the result of man-made use of fossil fuels, is changing or otherwise damaging the Climate, then know that you are dealing with Climate Charlatans. •Consider the direct effect that wind turbines have on the climate: oWind turbines change the wind velocity to such an extent, that in the larger wind farms (report by US Wind Power 2016), the rows of turbines at the trailing end of the wind vector move more slowly because of the momentum of the wind being significantly dampened by the turbines on the front of the wind wave. In short, the actual amount of power produced is significantly less than the calculations from the models. oWind turbines directly change the climate by parasitizing the surface convective air currents which place a drag on the vertical atmospheric mixing. This effect is mostly evidenced in offshore turbines that dampen the smooth laminar flow of air that oscillates between the land and the sea. oWhen you have over 250,000 wind turbines, around the world, that directly change the climate via parasitization of surface convective air currents which dampen atmospheric mixing and nobody from the Union of Concerned Communists or the Friends of Global Progress, is even bothering to wave a flag, then you can be assured that Climate Change Catastrophism is less a matter of science and more a matter of politics and taxpayer financed corporatism. •"Climate Change" and the push for so-called "green energy" as advanced by The State is easily the largest scam in recent history. Electricity produced by the hydroelectric dams provides the most cost-effective and reliable form of energy. The dams do not shut down at night. They do not shut down when the wind stops. The fluctuations of so-called "green power" (solar and wind) are highly dependent on power from 24/7 sources including hydroelectric dams and nuclear plants. Solar and Wind farms require far more land area per kilowatt hour produced when compared to Hydro and Nuclear. Additionally, solar panels have a tremendous cost in terms of the waste products from both their manufacture and disposal. Every wind turbine now in operation will need to be replaced in 15 (or fewer) years. Instead of desecrating our beautiful landscape in Eastern Washington, we should focus our efforts on preserving the hydropower currently in operation and advance the build-out of nuclear reactors. In summary, I am fully opposed to HHH wind turbine project. I encourage you to work to ensure that the Horse Heaven Hills remain unblemished by the appearance of the proposed	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This sections is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Air Quality	A substantial range of life cycle green house gas (GHG) emissions has been reported in the literature. In 2021, the United States Department of Energy National Renewable Energy Laboratory (NREL) published a comprehensive review and comparison of life cycle analyses (LCA) of GHG emissions from electric generation (Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update, accessed on February 23, 2023 at https://www.nrel.gov/docs/fy21osti/80590.pdf). The evaluation indicates that median reported life cycle GHG emissions from wind and solar photovoltaic electric generation, 13 and 43 g CO2e/kWh, respectively are more than an order of magnitude lower than median reported life cycle GHG emissions from natural gas, oil or coal-based generation (486, 830 and 1001 g CO2/kWh) and comparable to median life cycle emissions from nuclear and hydropower of 13 and 27 g CO2e/kWh, respectively. Natural gas, nonhydroelectric renewable resources (mostly wind), nuclear energy, and coal generate almost all the rest of Washington's in-state electricity. Natural gas is the second-largest source of in-state net generation, and it fueled 12% of the state's total electricity generation in 2020 (Washington State Profile and Energy Estimates, US Energy Information Administration as accessed February 23, 2023 at https://www.eia.gov/state/analysis.php?sid=WA#:~:text=Natural%20gas%2C%20nonhydroelectric%20renewable%20resources%20%28mostly%20wind%29%2C%20nuclear,of%20the%20state%27s%20total%20electricity%20generation%20in%202020). As a result, life cycle GHG emissions from the Horse Heaven project are expected to result in generation that is comparable to or less than other forms of bulk generation available from the grid. The Harvard study of 0.24 degress Celsius warming is theoretical model that is based on the assumption that one third of the continental U.S. is covered with enough wind turbines to meet present-day U.S. electricity demand. The Horse Heaven project is a minuscule fraction of the total area included in the Harvard estimate and even if the modeled result were true, the relative magnitude of the purported temperature change would not be expected to result in a measurable change in local climate conditions.	4.3	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1105453	I oppose the wind mill project. The vast majority of residents within site line of this project object to being bypassed on who makes the decision on this project. Stop this project now.	General - Question for EFSEC	Comment acknowledged. Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility. Several opportunities were given to the stakeholders and the public to provide comments on the Project and Draft EIS. EFSEC considers all submitted comments and public opinion in its decision making and recommendation.	n/a	n/a
Anonymous User	1105645	The potential number of fatalities and significant injuries in the manufacture, erection, maintenance, and eventual end of life removal, should be evaluated and compared with other energy sources (e.g. nuclear). We are opposed to the windmill project due to a number of reasons, including the following: -- The much higher potential fatality/injury rate during the life cycle of the windmills compared with other energy sources such as nuclear or solar. -- The unreliability compared with other energy sources such as nuclear. For example, the wind is typically small or nonexistent on the coldest and hottest day of the year. -- The negative affect on wildlife (e.g. birds killed by the blades). _ The negative visual impact.	Public Health and Safety	The Applicant has committed to measures that would protect worker safety, as provided in Section 4.13.2.4 of the EIS.	n/a	n/a
			Energy and Natural Resources	The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
bluemtngirl	1105752	I am not in favor of this massive, intrusive turbine wind project	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1105774	This is a Seattle Space Needle view at Wind Turbine Height from The Horse Heaven Hills into the Tri Cities(500 ft.). We need your help.	General- video or photo	Submitted video/photo received.	n/a	n/a
Anonymous User	1105921	It appears that these wind turbines are simply a way for the State of Washington to say it's doing something "green", when, in fact, it is the exact opposite. These windmills produce less power than they consume for their lifespan, they kill birds, and they damage our visible environment. There is NO NEED for these in Washington State when we have an abundance of renewable hydroelectric power options and actually EXPORT our power to those areas that don't have enough power. We are wasting taxpayer money, increasing our energy costs for no good reason and continuing to damage our environment and wildlife. Come to your senses and STOP this abomination.	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
Karen Brun	1106018	Attached is an OpEd piece by Rick Dunn, Benton PUD General Manager, highlighting the fallacy of continuing on the "wind energy as a viable clean energy alternative" path. It needs to be included in the public record.	Energy and Natural Resources	The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, a forecast of regional electricity demand is presented in the Project's Energy Natural Resources Section of the DEIS, which suggests that by 2041, the region could see a 22.5 percent increase in demand.	3.7.1.1 Power Generation and Demand	n/a
Anonymous User	1106112	I don't feel that this proposed Wind Farm is necessary in the Tri Cities, WA. We have enough power here. It will only line the pockets of the wind farm company and the few farmers who own the land. It will desecrate the view of the residents who live in this area and by those who drive by. I would listen to the local environmentalists rather than those who stand to gain money! From what I have read, the energy would not be used in our area and maybe not even in this state! The project will create road traffic problems by bringing in these monstrous poles and arms. It also creates a problem of where to dispose of them when they are no longer able to function. Get greed for a few out of the picture and allow our local citizens a more serene and soothing view of our beautiful landscape!	Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Hayleyhoyt	1106136	No on the windmills! We have more than enough nuclear power here in the Tri-Cities area and we do not need to clutter our vans and backyards with hideous windmills. If the Eastern side of the state wants these windmills so bad they can put them over near Seattle! Please stay out of our Tri-Cities area! Use nuclear power. IT IS THE GREENEST POWER AVAILABLE!!!! DO YOU PEOPLE NOT UNDERSTAND THIS???? .	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1106187	Yesterday I went for a walk in the Horse Heaven Hills just south of my home. I enjoy the exercise, open areas, seeing the occasional deer, raptor or other surprises nature provides. Driving home on Owens road I noticed 3 wind turbines operating near Jump Off Joe and probably another 20 just sitting idle. I consider all of them "eye" sores. I hear Scout Clean Energy talk about "clean" energy and local jobs. If the goal is "clean" energy we would be building new generation nuclear plants. And jobs? … if the acreage Scout Clean Energy wants allocated to them were used to put in feed lots or even pot farms, I'm sure more local jobs would be created. I don't have much use for any pot farms, but I do like a hamburger now and again. The Horse Heavens Wind project benefits energy consumers and business interests many hundreds of miles away not the locals. I heard our governor recently remark with pride that the people of Washington are an audacious bunch. Maybe so, if the people of this state allow this wind project to be rammed down the throat of those who live here, well that sounds audacious to me. I've always associated an audacious person as one who's arrogant and self serving. I looked audacious up in the dictionary – "showing an impudent lack of respect".	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1106258	My name is Clark Stolle. Thank you for the opportunity to voice my opposition to the proposed project. I am a long-time resident of Kennewick, WA. My professional background is in land use planning and management, where I have worked at city, county, regional and federal (contractor) levels. I am also a past Planning Commissioner for the City of Kennewick. Below are my comments regarding the proposal and the draft EIS. What is our legacy to be in the Tri-Cities? My family has lived in the Kennewick area for over 70 years and we have shared a feeling of pride in the Horse Heaven Hills, believing that they should to be preserved as much as possible, as part of the heritage of our area. They are a unique and beautiful part of our region. Allowing this project to be built at the proposed locations when other options exist has long term consequences. This complex will cause significant and irreparable harm to the environment, wildlife, birds, local economy, visual aesthetics, recreation and the overall quality of life for an urban area of over 300,000 people. Has serious consideration been given to the location, quantity, and size of these monolithic towers next to an urban area? There are two scenarios proposed for this 25 mile long project, running along the Horse Heaven Hills ridgeline from Finley to Benton City: 244 turbines up to 500 feet tall and 150 turbines up to 670 feet tall. Both create significant adverse visual impacts that cannot be mitigated. These towers will be among the tallest and most massive in the world. The blades on each tower are hundreds of feet in diameter and span acres of air space. Make no mistake this is not a visually aesthetic "wind farm" churning away in the middle of nowhere. It is an industrial complex of enormous proportions with many components. By comparison, these towers will be taller than the Space Needle (605 ft); the Statue of Liberty (305 ft); Gateway Arch in St. Louis (630 ft.); and the Washington Monument (555 ft.). They are far taller than any Redwood, Douglas Fir, or Sequoia tree. If this project is approved, our community will be forced to live within eyesight of the towers and no one who lives here, or visits can escape seeing them.	Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - Question for EFSEC	Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility. Several opportunities were given to the stakeholders and the public to provide comments on the Project and Draft EIS. EFSEC considers all submitted comments and public opinion in its decision making and recommendation. Regarding the expedited processing, on March 29, 2021, prior to public information meeting, the Applicant withdrew its request for expedited processing.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
Anonymous User	1106262	Do not bring this into our community ! We do not want the environmental impact that comes with wind farms, let alone the eyesore ! What happens when one catches fire which they do, and starts a grass fire. The risks and long term effects are not welcome.	Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a
Anonymous User	1106263	In James Conca's online article in Forbes titled "Wind Turbines On Washington's Horse Heaven Hills – How Not To Pursue A Green New Deal," he states that wind in this region doesn't produce much energy, only functioning at 30% of capacity. In contrast, our local nuclear reactor, the Columbia Generating Station, is at 98% of capacity. The map included in the article shows that Tornado Alley is a much more efficient location for wind power, functioning at 50% of capacity. Also stated in the article - "Whenever energy from wind comes onto the grid, hydro generation is dropped or curtailed, by spilling water over the dams instead of through the turbines. " "This wind farm will have no effect on climate change or carbon emissions, will not replace fossil fuel at all, will mar the beautiful vistas of this area, provide a trivial number of temporary construction jobs, and preferentially kill raptors and migratory birds in the great Pacific Northwest Flyway zone. "	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1106300	I think it is very easy for out of state companies and even those on the west side of the state to underestimate the fire danger in the Horse Heaven Hills, which for a few months out of the year is Extreme. The HHH wind farm is not a good idea for several reasons, one of which is the significant fire danger in the HHH, which would only increase with the construction and operation of the wind farm. I have seen multiple fires on the dry hills. They are fast moving, cover large areas, and are difficult to contain. We should not put our farm land and land in close proximity to Tri-Cities in greater fire danger. See last paragraph of 4-62 of DEIA "The City of Kennewick has a goal of reducing water demand per capita..." See first paragraph under "Fire" page 4-104 of DEIA "Project construction could increase the risk of fire, particularly during hot, dry conditions. Wildfires have become more commonly human-caused than natural...Benton County has a high potential for wildfire." Thank you for your time and consideration.	Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a
Anonymous User	1106319	Please see attached document	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. EFSEC considers all submitted comments and public opinion in its decision making and recommendation.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Additional mitigation measures (such as using ADLS) recommendation will be considered.	4.10	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
			Socioeconomics	Sections 3.16 and 4.16 present socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities. In accordance with WAC 463-26-025, on March 30, 2021, EFSEC held a virtual public information meeting to explain the process that would be followed for review of the proposal. Members of the public were given an opportunity to provide oral and written comments. DEIS also published publicly for public for comment. Public had 45 days to provide comments in writing to EFSEC. Also, a public hearing meeting was held on February 1st 2023 for oral and written comments on DEIS.	1.4, 3.16 and 4.16	n/a
Resident	1106331	I am in favor of this project for the local jobs it will create and the economic boost for our local economy.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1106360	I am vehemiately AGAINST this wind farm project. Wind turbines will ultimately NOT end up being GREEN! Nuclear power coupled with reprocessing of spent nuclear fuel will ultimately become our energy source for the future. Perfect that energy source and the nuclear fuel cycle NOW...	Energy and Natural Resources	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1106388	Please see my attachments. Thank you	General- video or photo	Submitted video/photo received.	n/a	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This sections is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
Anonymous User	1106394	We are against this project! Too many animals die using these massive monstrosities! Do not ruin our natural landscapes with these expensive giants! These are not environmentally friendly. Do not put these up!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Kit	1106470	Hello, I am not in favor of this wind turbine project. There is not supporting evidence that this region requires the energy generated from the proposed wind farm in the Horse Heaven Hills. Sites should be considered in other areas of the NW to determine if there is need for the energy generation for that region, and if the average winds would support the investment when electricity is needed most. Eastern Washington has many winter days of high-pressure inversions resulting in cold and windless days. Wind farms in Washington are more productive in the summer, but that coincides with times that preferred hydropower is at maximum levels which supports no need for the wind power. Recent public surveys from Tri-Cities Chamber of Commerce and Benton County Parks show a majority of Tri-Citians highly value our regions scenic vistas - ridgelines, hillsides, canyons and desert views. This proposed wind farm will destroy the designated areas open space vistas which I think of as Landscape Pollution. As degradation of our open spaces continues, protecting our beautiful open space areas should be given serious consideration. Protecting Area Wildlife - I read that the Washington state Department of Fish and Wildlife raised concerns about ferruginous hawks and other wildlife in comments that the agency submitted earlier to EFSEC. Many of the turbines, transmission lines and solar arrays are close to or stretch across draws and canyons with shrub steppe and grassland habitats. (20 special species and the Pronghorn antelope are listed in the DEIS as being impacted by the wind project; this includes the state Endangered Ferruginous Hawk). Since there is no evidence to support the need for the energy in this region which is generated from the proposed wind farm, this project should not be approved in order to protect the Area Wildlife. Thank you. Kit	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat, including special status species are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1106563	Please do not approve the Horse Heaven Wind Farms Project. I do not believe it will provide a meaningful and long term solution to clean energy. I personally enjoy the views without the windmills.	Energy and Natural Resources	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Anonymous User	1106634	I think this is a great idea and we should embrace wind farms today and for the future even at Horse Haven.	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1106639	I am strongly opposed to the HHH W&S Project. The net benefit is less than zero--ruined skyline, negative effect on wildlife and environment, limited life span, non-recyclable material composition sourced through methods harmful to people and the environment, inconsistent generation capability, no storage, and not financially viable without publicly funded subsidies. Jim Bennett, Kennewick	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the EIS. This sections is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Socioeconomics	Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16 and Apendix 4.16-1	n/a
Anonymous User	1106684	I would like to record my opposition to the proposed Horse Heaven Clean Energy Center just south of the Tri-Cities as currently presented by Scout Clean Energy. I acknowledge there are some pros - it will produce up to 1,150 megawatts of power (depending on the weather), it will provide good-paying construction jobs for a while, and farmers leasing their land to the project will benefit financially. However for the community, it will permanently blemish the rustic and unspoiled beauty of the hills and ridges south of the Tri-Cities. The scope of the project is massive encompassing over 70,000 acres stretching from Finley to Benton City with wind turbines visible from Kennewick, Pasco, and Richland as well as Finley and Benton City. I also question how "clean" the project really is when you consider the carbon footprint created by the manufacture, transportation, installation, maintenance, and eventual removal/replacement of the wind turbines, solar panels, and batteries. The Tri-Cities Chamber of Commerce conducted a survey with 78% of respondents stating the Horse Heaven Hills wind farm was not worth the personal, environmental , and potential negative economic impacts it would have on the Tri-Cities. If you want a source of clean energy that the Tri-Cities could get behind, we should be promoting the development and deployment of the Advanced Small Nuclear Reactors. Richard W. Richter 146 Henley Drive Pasco, WA 99301	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Socioeconomics	Socioeconomics analysis for the project did not identify any negative economic impacts. Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16 and Appendix 4.16-1	n/a
Anonymous User	1106733	Kennewick Urban Growth Area SAVE OUR RIDGES PLEASE1	General- video or photo	Submitted video/photo received.	n/a	n/a
Anonymous User	1106745	I support Washington State taking the necessary steps to meet it's energy goals. We must become green energy efficient to save our state and planet.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tri-City Regional Chamber of Commerce	1106756	Please see attached comment letter.	Visual Aspects, Light and Glare	Comment noted. Additional mitigation including potential turbine removals have been proposed by the Applicant with additional turbine removals to be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10 / 4.10.2.2 Shadow Flicker	Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the Final EIS
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Socioeconomics	Potential impacts on wellbeing upon decommissioning would occur as a result of Project termination and the fact that the Applicant would no longer be required to pay taxes. Since in the methodology of determination of magnitude of impacts "Medium impacts" is assigned for when potential impacts may occur on sensitive receptors (in this case schools, school districts, and fire stations) this potential impact is medium for all populations, including people of color and low-income populations. However, as the status of well-being will be resumed to pre-construction/current conditions because of the project termination, no mitigation measures are deemed necessary. Additionally, the analysis of potential project impacts on people of color and low-income populations in the last row of Table 4.16-4c presents disproportionate impacts on these communities through indirect pathways, as discussed in section 4.3, Air Quality; section 4.10 Visual Aspects, Light and Glare; section 4.11, Noise and Vibration; section 4.12, Recreation; and section 4.14, Transportation. Section 4.16.2.3 and table 4.16-4c in the final EIS will be revised for more clarity.	4.16, Table 4.14-4c	4.16.2.3 and table 4.16-4c
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1106768	Please see uploaded document, HHH_DEIS_comments_-_Berkowitz_2023_02_01	Wildlife and Habitat	The description of habitats and potential species use of the Lease Boundary provided in the EIS was developed using habitat models (including corridor models) supplemented with empirical data collected by the Applicant. At the time of drafting the EIS, studies had not been conducted for all species with potential to occur in the Lease Boundary, as such, the EIS applied precautionary principals and assumed their potential presence and impact based on available habitat. The mitigation measures outlined in Chapter 4.6 require the Applicant to conduct additional studies to further characterize wildlife use of the Lease Boundary and adjust the Project layout to manage those impacts in final design. The results of these studies and final design would be reviewed and approved by EFSEC along with rationale for where sensitive habitat was not avoided. Terms like "where feasible" were used to allow for these discussions with EFSEC and the application of adaptive management as the Project design progresses. A technical advisor committee is a useful tool developed to bring technical experts together in management of environmental impacts. The purpose of the TAC would be to provide unbiased input to mitigation measures that can be implemented and adapted based on the results of pre-construction surveys, and operational surveys. While the TAC would provide input into project mitigation, the ultimate approval of mitigation measures would be with EFSEC. The Applicant will propose TAC members but EFSEC will approve the TAC members. Spec-5 is not specific to currently active nests but includes nests documented in PHS data. Spec-5 will be revised to provide additional clarity and include nests that have had recorded activity in the preceding 10 years. The same approach cannot be applied to smaller birds that do not reuse their nests. Mitigation measures applied to these species includes a requirement to avoid and compensate for habitat loss. Variability in annual mortality rates is expected due to a variety in factors, including changes in annual variation in local populations. However, two years of mortality data is expected to be sufficient to verify the assumptions applied in the EIS. If data collected during the initial two years of operation is not considered sufficient or is not consistent with assumptions presented in the EIS then Wild-1 allows EFSEC to require the Applicant to continue annual monitoring. Wild-1 will be updated in the FEIS to provide additional clarity. Information on turbine height and potential impact on birds and bats is provided in Appendix 4.6-1 The EIS addresses the potential impact to birds and bats, including mortality, in Section 4.6. As noted in Section 4.6.2.2, bird mortalities are typically evenly distributed between nocturnal migrants and resident birds, while bat mortality is anticipated to be greatest during migration. Mitigation measure Wild-1 was developed to require monitoring bird and bat mortality and development of additional mitigation measures if bat mortality rates exceed anticipated threshold. Wild-1 will be updated to provide clarity to the process the Applicant would be expected to follow to establish mortality threshold rates and establish adaptive management strategies. If the results of operational monitoring suggest elevated impacts occur during nighttime migration, additional mitigation measures may be applied such as monitoring night time movements or periodic curtailment of turbines. These mitigation measures may be targeted to a specific time of year, time of day, or group of turbines depending on monitoring results. Data collected on bat presence was collected using acoustic monitoring devices. These detectors operate 24 hours a day when set to detect nocturnal activity. The ratings provided in this table are based on the extent of the impacts directly connected to the Project. It is acknowledged that, for many impacts, there can be cascading effects that occur beyond a particular spatial bound. indirect effects of altering migration routes could extend beyond the Lease Boundary. Mitigation measures provided include measure requiring the Applicant to avoid impacts to modelled movement corridors. Where avoidance is not possible, the mitigation measures would require the Applicant to develop additional mitigation measures to maintain wildlife movement. The rationale for why avoidance is not feasible and proposed new mitigation measures would be reviewed and approved by EFSEC. Current FAA regulations do not allow for turbine blades to be painted colors other than white.	4.6	Mitigation measure WILD-1 will be updated to provide clarity on the monitoring and reporting process. Spec-5 will be revised to provide additional clarity and include nests that have had recorded activity in the preceding 10 years.
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			General - Question for EFSEC	The term "would" is used in place of "will" in the EIS since the EIS approaches the narrative with a "Proposed" Project. If approved, the Applicant would be required to comply with all mitigation measures and conditions set by the approving agencies.	n/a	n/a
			Vegetation	The EIS provides an assessment of each project component individually (each solar field and the micrositing corridor) and for the comprehensive project considering all project component together. For vegetation including priority habitats and special status plant species, the assessment is provided in Section 4.5. Table 4.5-12a, 4.5-12b, and 4.5-12c show how the ratings for individual project components and the comprehensive project. Permanent disturbance of the east solar field and the comprehensive project were rated as high magnitude due to permanent impacts to priority habitat. While no significant unavoidable adverse impacts were identified, priority habitat was identified as a cumulative impact in Section 5.2.2. Details of specific Applicant commitments and identified mitigation proposed by EFSEC are provided in Section 4.5.2.4. One wetland was identified within the Project Lease Boundary, which is located 240 ft west of the micrositing corridor. This is greater than the required buffer distance of 40 ft by Benton County. The infrastructure sited near the wetland is a 240 volt transmission line. Other Project infrastructure is sited approximately 0.4 miles west of the wetland at the nearest point. Proposed mitigation include a wetland specific Stormwater Pollution and Prevention Plan for work near the wetland (W-6). Noxious weeds and other invasive plants, including cheatgrass are already present within the Project lease boundary including within Priority Habitat areas. A description of some of the existing stressors on Priority Habitat is provided in Table 3.4-5. The Eastside interior grassland varies in quality based on the presence of invasive plants, including cheatgrass, and evidence of cattle use in the existing conditions. The Revegetation and Noxious Weed Control Plan is designed to avoid the introduction of new invasive plants and minimize the spread of existing invasive plants through the life of the Project. As many invasive plants are present at existing condition, complete removal is not likely. However, treatment of invasive plant infestations would occur through all phases of the Project, and revegetation of areas of disturbance will focus on planting with native plants, as described in Section 4.5.2.4 Applicant Commitments and Identified Mitigation. The EIS attributed temporary and short term to habitat loss associated with temporary disturbance during construction that would be restored and revegetated following construction. Restoration of shrub-steppe and grasslands in arid environments is challenging. Section 4.5.2.4 Applicant Commitment and Identified Mitigation includes an As-Built Report and Offset Calculation whereby areas of temporary disturbance that do not meet the success criteria for revegetation after the established monitoring period would then be included as a permanent disturbance and offsets would be required at a permanent disturbance ratio. Vegetation selected for growth under solar panels must be conducive to the operation of panels. Short grasses are preferred to avoid interferences with the panels and to minimize fuel load to minimize risk of wildfire (Beatty et al. 2017, Native Vegetation Performance under a Solar PV Array at the National Wind Technology Centre). Based on the Application the maximum height of the top of the solar module would be 15 ft above ground with a rotational access 6.2 to 8.2 ft off the ground. Section 4.5.2.4 include the mitigation measure Tree Avoidance (Veg-1), which requires the Applicant to avoid trees during construction. If avoidance is not achieved, the number and location of trees removed would be provided to EFSEC and a mitigation plan would be developed. Disturbance to rabbitbrush is mitigated at the same offset ratios as a Class II habitat (e.g., shrub-steppe) for temporary and permanent disturbance. Rabbitbrush is offset as Class III habitat (e.g., eastside interior grassland) under the solar arrays. Habitat offset ratios are provided in Table 4.5-11.	Section 3.4, 4.4, 3.5, and 4.5	n/a
Anonymous User	1106774	Alternative energy is essential to reduce global climate change, which causes more violent weather, bigger floods, more drought, more forest fires, higher sea level, more acidic oceans, and the direct and indirect deaths of millions of people. The draft environmental impact statement seems to correctly address the Horse Heaven wind and solar project thoroughly. Three common complaints about windfarms are noise, birds, and view. I do not understand the noise issue because I have led many field trips to the Stateline wind farm on windy days; my guests seemed to enjoy the gentle sound as the propeller blades make electricity. Some birds and bats get hit by the propeller blades, but fossil fuel use, ecosystem modification, and cats have by orders of magnitude killed more birds. Wind turbines on the Horse Heaven Hills do not block views of the Cascades, the Blue Mountains, or any rivers or canyons; indeed, their presence indicates the engineering and architecture necessary to reduce global climate change. The economic advantages of windfarms to rural landowners in eastern Washington are huge. Wheat is grown right under wind turbines; cattle graze in the shade of wind turbines; farmers and ranchers benefit from payments by wind power companies. The proposed Horse Heaven Hills wind farm would provide hundreds of millions of dollars in economic output and taxes, plus hundreds of jobs. The project is particularly attractive because it includes solar facilities and batteries. Dust from construction is minimal compared with farming. No fish-bearing streams are directly affected. Native Americans did not live atop the Horse Heaven Hills. I believe that habitat alteration will be minimal, especially compared with fossil fuel pipeline construction. Hopefully the project would reduce the use of motorized off-road vehicles which are noisier than wind turbines, cause erosion and dust, and consume fossil fuels. The proposed Horse Heaven Clean Energy Center should be approved. Resources like the wind and sun need to be economically and environmentally developed everywhere possible; the windy, sunny Horse Heaven Hills are ideal. Robert J. Carson, 705 Boyer, Walla Walla, Washington 99362 Whitman College Professor of Geology and Environmental Studies Emeritus	Agreement with the Project	Comment acknowledged.	n/a	n/a
gedgemon	1106824	I'm opposed to this project as it will be an aesthetic blight on a beautiful landscape. I'm also concerned that turbine bearing failures could set of range fires in the area.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
mhue	1106828	Decide Locally is Against the Proposed Wind Turbine Farm A PETITION TO GOVERNOR INSLEE AND THE STATE ENERGY FACILITY SITE EVALUATION COUNCIL WE, CITIZENS OF WASHINGTON, HEREBY GIVE OUR SIGNATURE TO PETITION AGAINST THE HORSE HEAVEN HILLS WIND FARM PROJECT STRETCHING 24 MILES OF THE TRI-CITIES RIDGE LINE FROM SOUTH OF TRI-CITIES IN FINLEY, ABOVE SOUTH KENNEWICK, ABOVE BADGER CANYON EXTENDING TO KIONA/BENTON CITY. THE WIND PROJECT DEVELOPER PLANS TO BUILD AND ERECT 244 WIND MACHINES TALLER THAN THE SPACE NEEDLE ALONG THE ENTIRE SKYLINE OF TRI-CITIES AND BADGER CANYON. THERE HAS BEEN NO PUBLIC HEARING LOCALLY SO OUR VOICE HAS NOT BEEN HEARD. THIS POWER IS NOT NEEDED LOCALLY AND WOULD LIKELY BE SOLD OUT OF STATE. THIS PROJECT SITE CONSTRAINS THE BENTON COUNTY GROWTH PLAN. THE WASHINGTON STATE FISH AND WILDLIFE EXPRESSED CONCERNS ABOUT INCREASED MORTALITY OF ENDANGERED AVIAN SPECIES, SUCH AS, FERRUGINOUS HAWKS AND MIGRATORY BIRDS SUCH AS SANDHILL CRANES. THE FRAGILE SHRUB STEPPE ECOSYSTEM WILL BE FURTHER DEGRADED AS WILL NATIVE PLANTS, SOME OF WHICH ARE PROTECTED. THE TRI-CITIES SKYLINE WILL BE FOREVER CHANGED. THE CONSTANT LOW FREQUENCY NOISE, BLADE FLICKER REFLECTIONS, AND 244 FLASHING RED LIGHTS ON THE MACHINES AT NIGHT POSE HEALTH RISK TO HUMANS INCLUDING HEADACHES, LOSS OF SLEEP, AND VERTIGO FROM THE CONSTANT NOISE THAT CAN CARRY OVER LONG DISTANCES. THERE IS EVIDENCE THAT TURBULENCE FROM LARGE WIND PROJECTS ACCELERATE MOISTURE LOSS FROM THE SOIL AND WILL INCREASE LOCAL TEMPERATURES. WE HAVE GRAVE CONCERNS ABOUT IMPACTS TO OUR LOCAL WINE INDUSTRY, FRUIT ORCHARDS, AND DIVERSIFIED AGRICULTURE. PROPERTY VALUES WILL BE DECREASED. I AM AGAINST CONSTRUCTION OF THE WIND FARM ON HORSE HEAVEN HILLS RIDGE OF TRI-CITIES AND BADGER CANYON. The attached pdf are signature pages of residents and people visiting as tourists, sports events, shopping, dinner and wine tasting events. Many commented they come to Tri-cities because they don't want to drive down the gorge or to Walla Walla to have a weekend away. We collected 2668 signatures, a copy is for EFSEC and the original will be given to the governor. Because scanning lost some quality in the signature, I will mail your copy today Febr. 1, 2023 Sincerely, Margaret Hue, Spokesperson	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
			General - opposition	The term "would" is used in place of "will" in the EIS since the EIS approaches the narrative with a "Proposed" Project. If approved, the Applicant would be required to comply with all mitigation measures and conditions set by the approving agencies. EFSEC hosted a public comment meeting for the Horse Heaven EIS on February 1, 2023.	n/a	n/a
			Wildlife and Habitat	The EIS assesses the potential impacts to wildlife, including birds, ferruginous hawk, migratory birds, and sandhill cane in Section 4.6. Impacts considered included habitat loss (direct and indirect), mortality (e.g. from collisions with turbines), barriers to movement, and habitat fragmentation. Section 4.6 also provides recommended mitigation measures intended to reduce potential impacts to wildlife.	4.6	n/a
			Vegetation	The EIS provides a comprehensive assessment to Priority Habitats and special status plant species in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts such as dust. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat and special status plant species were identified as a cumulative impact due to the decline of priority habitats throughout Washington and sensitivity of special status plant species, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Land and Shoreline Use	The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. Table 3.8-1A shows an analysis of the Project's consistency with the Benton County Comprehensive Plan's relevant goals and policies. For aspects of the Project's design that are not in alignment with the Benton County Comprehensive Plan, EFSEC would review discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant.	4.8.2, Appendix 3.8-1	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	Include AVA as part of LSU .
			Earth Resources	See Section 4.2 of the Final EIS, which discusses potential impacts to earth resources from the Project.	4.2	n/a
Anonymous User	1106857	This project is totally unnecessary. There are sufficient alternative, existing power-providing resources (nearby dams, nuclear generating station) surrounding the Tri-Cities that provide adequate power support for the population in that area and in the surrounding areas. Destroying the landscape and the natural aesthetics of the Horse Heaven Hills and creating a dangerous environment for wildlife and the public are absolutely unacceptable.	Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	3.7.1.1 Power Generation and Demand	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1106884	See attached file.	Socioeconomics	Sections 3.16 and 4.16 present socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities. Power would be transmitted to a purchaser under a contract with the Applicant. Such power purchasers could include any of the local or regional utilities, or commercial and industrial power users with potential off-takers having distribution outside of Washington state.	3.16, 4.16 and 1.2.1	n/a
			General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Energy and Natural Resources	The proposed Project meets the definition of an "alternative energy resource" that includes "wind" and "solar". EFSEC's review of the proposed Project is guided by RCW 80.50.010 which states that it is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change. The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the EIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities 1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Karen Brun	1106901	Attached is a document containing my comments to the Horse Heaven Wind Project. I am totally opposed to this project.	General - Question for EFSEC	SEPA guidelines and Washington Administrative Code do not specify that Draft EIS should be published in any other languages than English. However, EFSEC has completed their due diligence in notifying the public by publishing English and Spanish notices, and English and Spanish factsheets. Additionally, EFSEC phone number, email address and mailing address were provided in the notice of issuance of Draft EIS. EFSEC did not receive any requests for Spanish translation of Draft EIS during the public comment period. In accordance with WAC 197-11-455, "the draft EIS shall be issued by the responsible official and sent to any person requesting a copy of the EIS from the lead agency (fee may be charged for DEIS, see WAC 197-11-504)". On December 16, 2022, EFSEC notified the public of issuance of Draft EIS. The Draft EIS was available for public review on EFSEC website and physical copies were sent to local public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Copies of the Draft EIS along with the Horse Heaven Wind Farm Project Application for Site Certification, (EFSEC Application/Docket No. EF-210011) were available for public review at 8 local libraries on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, as stated above, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies. The term "would" is used in place of "will" in the EIS since the EIS approaches the narrative with a "Proposed" Project. If approved, the Applicant would be required to comply with all mitigation measures and conditions set by the approving agencies.	n/a	n/a
			Socioeconomics	Aspects of the human-environment and Project impacts on populations of Benton and Franklin counties were analyzed in various sections of the EIS. These sections include but are not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics.	n/a	n/a
			Visual Aspects, Light and Glare	The analysis area for the wind turbines extended out 25 miles in the EIS with high impacts identifed out to 5 miles from most KOPs. The viewshed mapping in Chapter 4 of the EIS has been updated to show the correct maps which were included in Appendix 3.10-2 within the Draft EIS with additional context information added. Additional viewpoints and visual simulations have been included in the Final EIS including an additional KOP in Benton City. Many simulations were updated to reduce the effect of atmospheric conditions to best depict Project visibility under exceptionally clear atmospheric conditions including KOP 5. Additional mitigation including potential turbine removals have been proposed by the Applicant with additional turbine removals to be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10 / 4.10.2.2 Shadow Flicker	Updated turbine viewshed maps from Visual Technical Report with additional context information. New simulations included in updated analysis with atmoshperic hazing removed in simulations included in the Draft EIS. Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the FEIS
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. -- The Applicant has proposed constructing in the micrositing corridor. The Appliance provided the most probable worst-case scenario for disturbance acreage in that micrositing corridor for the greater number of turbines. Because information regarding disturbance for the smaller quantity of turbines was not provided, the larger amount of disturbance was assumed for the smaller quantity of turbines to be conservative. -- A detailed traffic analysis was requested by EFSEC.	2.0	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.
			Air Quality	Air emission calculations included in Appendix 4.3-1 were independently reviewed and either independently confirmed. In addition supplemental fugitive emissions calculations were performed by EFSEC since these were omitted in the Applicant's analysis.	4.3	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	Additional figures or figure inserts showing NSR locations with maximum impacts and the cloest noise source(s), has been requested.
			Energy and Natural Resources	Nameplate generating capacity is the amount of electricity a generator can produce when running at its maximum designed output. The proposed Project would have a nameplate generating capacity of up to 1,150 megawatts (MW) and would utilize both wind turbines and solar photovoltaic panels to convert energy from the wind and sun into electric power. Other alternatives were considered for detailed analysis, however, these were eliminated because they would not generate the designed nameplate generating capacity required by the Applicant.	2.1Description of the Proposed Action 2.2Alternatives to the Proposed Action	n/a
			Executive Summary	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Fact Sheet	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2. An analysis of the Project's contribution to cumulative impacts on agricultural productivity is provided in Table 5.2.	4.8.2, 5.2	n/a
			Earth Resources	See Section 4.2 of the Final EIS, which discusses potential impacts to earth resources from the Project.	4.2	n/a
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. EFSEC will initiate government-to-government consultation with Tribes and other state agencies. The FEIS will clarify when formal consultation was initiated and will distinguish formal consultation from all other communication and engagement with Tribes. The FEIS will report the results of the formal consultation.	4.9	The FEIS will clarify when formal consultation was initiated and will distinguish formal consulation from all other communication and engagement with Tribes. The FEIS will report the results of the formal consultation.
			Wildlife and Habitat	Issue ES-24: The EIS notes that gaps in available information on wildlife distribution and occurrence in the lease Boundary and uses conservative assumption (e.g. assumes presence) to characterize impacts. Mitigation measures in Chapter 4.6 requires the Applicant to conduct additional studies and use the results in their final design process. Where impacts still occur (e.g. where avoidance of sensitive areas are not feasible) the Applicant is required to develop a mitigation plan and provide additional measure to reduce impacts. The role of the TAC will be to provide independent advice on data collection, results interpretation, and suitability of mitigation measures. Plans and final design would be approved by EFSEC. Issue TAC: The purpose of the TAC is to provide independent advice to the Applicant and EFSEC regarding data collection, results interpretation, and mitigation planning. HAB-4 reads that the TAC will be formed in consultation with EFSEC. For clarity the following will be added to Hab-4 in the FEIS: "The Applicant, in consultation with EFSEC, would establish a TAC. The TAC would include local experts such as governmental experts (e.g. WDFW), scientific non-governmental organizations, and public organizations. EFSEC would approve the final TAC members." Issue Chapter 4 Reference Connell et all (1984) and Weaver et al (1996) provide definitions of adaptability and resilience. While these references are dated, the definitions are applicable. Sources of data used in Chapter 4.6 included site data collected by the Applicant. The Applicant designed field studies in consultation with WDFW. Other sources of data included publicly available databases managed by government and non-government groups and consultation with WDFW and WDFW species experts. References to discussions held with WDFW are documented in the reference section of the EIS.	4.6.2.5	Update to Hab-4: "The Applicant, in consultation with EFSEC, would establish a TAC. The TAC would include local experts such as governmental experts (e.g. WDFW), scientific non-governmental organizations, and public organizations. EFSEC would approve the final TAC members."
			Water Resources	The Columbia River is located outside the Project Lease Boundary. The intermittent and ephemeral streams within the Project Lease Boundary flow to the Yakima and Columbia Rivers; however, impacts to surface water are not anticipated to cause impacts to these major rivers. The intermittent and ephemeral streams are dry most of the year.	Section 3.4 and 4.4	n/a
Karen Brun	1106936	Issue: The DEIS disregards a major percentage of the Benton and Franklin counties demographics. A total of 40% of the population in Benton and Franklin counties are Hispanic. While the letter notifying residents of the DEIS release and where to find a copy, none of the actual DEIS documents are in Spanish. This is a significant disservice to a large portion of the population whose primary language is Spanish. Many do not understand or speak English at all. All DEIS documents should be translated into Spanish and reissued electronically, and hard copy provided to ALL libraries in impacted cities including Benton City.	General - Question for EFSEC	SEPA guidelines and Washington Administrative Code do not specify that Draft EIS should be published in any other languages than English. However, EFSEC has completed their due diligence in notifying the public by publishing English and Spanish notices, and English and Spanish factsheets. Additionally, EFSEC phone number, email address and mailing address were provided in the notice of issuance of Draft EIS. EFSEC did not receive any requests for Spanish translation of Draft EIS during the public comment period. In accordance with WAC 197-11-455, "the draft EIS shall be issued by the responsible official and sent to any person requesting a copy of the EIS from the lead agency (fee may be charged for DEIS, see WAC 197-11-504)". On December 16, 2022, EFSEC notified the public of issuance of Draft EIS. The Draft EIS was available for public review on EFSEC website and physical copies were sent to local public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Copies of the Draft EIS along with the Horse Heaven Wind Farm Project Application for Site Certification, (EFSEC Application/Docket No. EF-210011) were available for public review at 8 local libraries on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, as stated above, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies.	n/a	n/a
Anonymous User	1106953	I do not live near the proposed siting of the Horse Heaven project, but I strongly support our transition to renewable energy. I also note that the project comes from a Colorado based company, raising an issue of local control. Still we need to expand the already numerous solar and wind installations in ways that can support this crucial transition to renewables.	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
pmstauffer	1104224	The air quality in Badger Canyon will be greatly affected by the HH wind farm. No reliable monitoring data exist for PM10 and PM2.5 in these areas downwind from this giant industrial project. An air monitoring system for these fine particulates needs to be established along the 25 miles from Finley to Benton City before construction starts, to have a baseline and evaluate if the area meets air quality standards. Dispersion modeling needs to be done and included in the DEIS, not the FEIS, for proper review. Special attention needs to be paid in the dispersion model to the effects of the arrays of turbines in rows 6 deep, such as increased turbulence, soil drying, and soil mobility, and the unique topography of the HHH located 1500 feet above the Badger Canyon. The people in Badger Canyon are downwind from the Project, and their health and safety could be affected greatly by the HH wind farm project for the next 35 years.	Air Quality	As stated in the EIS, a dispersion modeling analysis of project emissions will be performed and included in the FEIS.	4.3	see column H
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. Applicant Commitments as stated in Section 2.1.3.10 of the EIS including multiple commitments to collaboration with tribes throughout the proposed Project. Please also see the EIS Section 9.2 Tribal Government Distribution List for specific tribal distribution information.	4.9, 2.1.3.10, 9.2	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Earth Resources	Comment acknowledged and is included in the administrative record for the EIS	4.2	n/a
			Public Health and Safety	The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Background air quality levels are discussed in Section 3.3.1.2 of the EIS. The final EIS will include the results of a forthcoming dispersion modeling analysis.	n/a	n/a
Anonymous User	1107020	This area doesn't need anymore power. Windmills are not efficient and an eye sore, destroying the views, landscaping and environment. Doesn't make sense to rap the environment and nature to save it ? The cons outweigh the benefits. Our kids need a hero. Someone needs to step up and do the right thing. No more Windmills in Kennewick views.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General- video or photo	Submitted video/photo received.	n/a	n/a
Anonymous User	1107055	PROJECT ELECTRICAL GENERATING CAPACITY - Statements in 1.2, 1.3 and 2.1 about the electrical generating capability of this project are highly misleading, and need to be clarified. This is particularly the case in 1.3 which states the project's purpose "is to provide 1,150 MW of renewable energy using wind energy and solar energy." In reality, the project's average electric energy production through a year could never come close to its nameplate capacity of 1,150 MW. Rather, it would be closer to an average of 250 to 300 MW because the capacity factors of both wind and solar energy generation are very low, close to 25% based on experience elsewhere. (Capacity factors take into account generation being off line or reduced due to routine maintenance outages, lack of wind, no solar production at night, cloudy skies, etc. As a point of comparison, the nearby nuclear Columbia Generating station, with a similar nameplate capacity, has a 90% capacity factor.) Statements in the referenced sections need to clearly state what the actual energy production from the project will be, so that reviewers who are weighing the adverse impacts of the project against its benefits aren't misled into thinking the electrical generation benefits are far higher than they will actually be. BIRD AND BAT MORTALITY – The analysis provided in 4.6.2.2 never provides an estimate of the total number of bird and bat fatalities for a year of wind turbine operations. Rather, it states only numbers expected per MW per year based on other projects' experience. And, it's not clear if those numbers are per nameplate MW or per actual MW produced. Regardless, an estimate of total fatalities per year needs to be provided (and I'm sure it's in the thousands).	Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
			Wildlife and Habitat	The FEIS will be updated to provide an estimate of bird and bat mortalities based on the estimated number of mortalities per MW/year. This estimate is predictive based on mortality rates at other facilities.	4.6	HAB-4
Anonymous User	1107069	The "significant unavoidable adverse impacts" noted in the draft EIS are of significant concern. Also as noted in the draft EIS, the wind turbines would dominate views from many locations throughout our community. This project would be a blight on our landscape. studies have shown adverse impacts to tourism, which is a significant economic engine in our area. I feel it robs Tri-Cities of a quality of life aspect of our region (beautiful vistas) and as a homeowner located int the Horse Heaven Hills I am concerned about diminished resale values as well as shadow flicker and impacts to area wildlife (as noted in the study).	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Pasco Chamber of Commerce	1107083	Please see attached letter	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Wildlife and Habitat	Impacts to wildlife, including special status species such as ferruginous hawk, burrowing owl, and pronghorn antelope are addressed in section 4.6 of EIS. This section also discusses the potential impacts to sandhill crane and wildlife movement.	4.6	n/a
			Earth Resources	Comment acknowledged and is included in the administrative record for the EIS	4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	Section 3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS. Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. In summary, the Proposed Action would generate local jobs and tax revenue. As a result of these benefits, the Project is not anticipated to have adverse impacts on the study area's economic conditions.	4.16 and Appendix 4.16-1	n/a
			General- video or photo	Submitted video/photo received.	n/a	n/a
			General - Question for EFSEC	SEPA guidelines and Washington Administrative Code do not specify that Draft EIS should be published in any other languages than English. However, EFSEC has completed their due diligence in notifying the public by publishing English and Spanish notices, and English and Spanish factsheets. Additionally, EFSEC phone number, email address and mailing address were provided in the notice of issuance of Draft EIS. EFSEC did not receive any requests for Spanish translation of Draft EIS during the public comment period. In accordance with WAC 197-11-455, "the draft EIS shall be issued by the responsible official and sent to any person requesting a copy of the EIS from the lead agency (fee may be charged for DEIS, see WAC 197-11-504)". On December 16, 2022, EFSEC notified the public of issuance of Draft EIS. The Draft EIS was available for public review on EFSEC website and physical copies were sent to local public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Copies of the Draft EIS along with the Horse Heaven Wind Farm Project Application for Site Certification, (EFSEC Application/Docket No. EF-210011) were available for public review at 8 local libraries on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, as stated above, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies.		
Anonymous User	1107104	Another very important point! Today even the environmentalist are calling for a moratorium on east cost wind farms because the noise is interfering with the wales and killing wildlife well being! No substantial studies were done on humans and whales before these were forced on the people and built costs are enormous, 20 million per unit! This folly is our tax payer money! All indications suggests harm is being done to everyone and every creature living in the areas of these turbines! We are not Guinea pigs or lab animals. Maybe they should be called death wind turbines 9 wales dead now and countless wildlife. Do not put these in residential areas of badger canyon! --badger canyon resident Becky Hughes	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1107106	In the DEIS for the Horse Heaven Wind and Solar Project, Scout Clean Energy fails to identify the true effects on migratory birds and relegates the effect as similar to the adjacent wind projects with no basis as to why that should be the case. The scale and breadth of this project presents a major hazard to migratory birds as they follow the Columbia River corridor, especially for populations that fly at night, and insufficient analysis is provided as to why expanding the breadth of effected flight path in the east west direction (across the basin) will not result in a significant increase in bird mortality. It also fails to mention the effects on raptor populations which are more effected than songbirds since they reproduce at a low rate. They also fail to mention the effects of taller structures and longer blades in to reaching the migratory pathways. Audubon Society, effect of wind power on birds:https://www.audubon.org/news/wind-power-and-birds Resources documenting effects on raptor populations: https://tethys.pnnl.gov/receptor/raptors#:~:text=Raptors%20are%20at%20high%20risk,elevation%20as%20wind%20turbine%20blades. Scout Clean Energy must be required to study migratory bird populations in more detail and ensure that expanding the wind farms territory further across the Columbia Basin and to lower lying areas than are currently occupied will not result in a marked increase in migratory bird and raptor mortality.	Wildlife and Habitat	Section 4.6.2.2 of the EIS addresses potential bird mortality. This section suggests that rate of mortality per MW per year may be similar to the adjacent Nine Canyon Project based on the proximity of this project to the Lease Boundary. The rate of bird mortality at the Nine Canyon Project is above the average rate for Washington State. The proximity of the Nine Canyon Project makes it a reasonable surroget to predict bird and bat mortality at the Horse Heaven Project; however, it is noted that the Horse Heaven Project is larger than the Nine Canyon Project; as such, would be expected to result in more bird and bat mortalities. This section will be updated in the FEIS to provide an estimate of the number of birds mortality that may occur per year at Horse Heaven based on the rates at Nine Canyon. In addition to the text provided in Section 4.6.2.2, Appendix 4.6-1 provides a comparison impacts to avifauna from the two proposed turbine heights. Raptors are discussed in Appendix 4.6-1. Mitigation measure Wild-1 provides a method for EFSEC to review mortality data from the Project and require additional mitigaiton measures in the event that the Project results in a higher mortality rate than predicted.	4.6	n/a
Anonymous User	1107110	HHH Public Hearing Testimony Feb 1, 2023 Hello Everyone. My name is Paul Krupin. I am a retired environmental protection specialist with a BA, MS, a well-used law degree, and over 40 years of work experience in the Pacific Northwest. I live in Kennewick Washington. On Tuesday January 31, 2023, President Biden said that climate change is a bigger threat to humanity than nuclear war. Governor Inslee is on record that he is committed to achieving bold, “science-based limits” on the greenhouse gas emissions that are causing our climate to change”. Reference: https://www.governor.wa.gov/sites/default/files/ClimateBrief-Dec2020.pdf The key question is whether the Horse Heaven Hills Project, and other projects like it, will be able to do anything at all to protect us from climate change. What does the best science really tell us? How are we going to identify good projects which can truly satisfy the needs identified from bad ones which cannot? I respectfully offer the following Recommended Action: EFSEC, with concurrence of the Governor and in cooperation with the tribes and local counties and cities, should convene a blue-ribbon commission (or a panel or committee) of exceptional people who are appointed to independently investigate, study and analyze the difficult and complex problems being caused by climate change, global warming and energy generation in Washington and the underlying purposes and premises for projects like the Horse Heaven Hills Project. The members of this blue-ribbon commission should be selected using a best and brightest approach to assure independence from political influence or authority. The commission should be charged with utilizing their expertise and experience to consider and evaluate the “science-based limits” and then issue scientific, programmatic and project-specific findings and recommendations which can then be used by decision-makers to take action on energy facility projects and proposals such as the Horse Heaven Hills Wind and Solar Project. The blue-ribbon commission should be charged with identifying, describing and evaluating the validity of the Purpose, Need, and Underlying Premises in energy projects to assure they can help achieve climate change goals and objectives. Their review should also evaluate the project proposals and the alternatives proposed by the Horse Heaven Hills Project, to assure they that can meet the goals and objectives of the policies and requirements of the State of Washington. The blue-ribbon commission should make specific recommendations regarding the need for the projects, the validity of the underlying purpose and need, the project components and their associated geographic locations, and an evaluation of whether key component can potentially be eliminated or relocated to reduce the significant impacts to people and the environment. No formal action should be taken on the Horse Heaven Hills Project until the findings and recommendations regarding the validity of the underlying purpose and need for the project, are provided by the blue-ribbon commission. This commission should prepare a draft report, give public presentations, take public comments, and then finalize its findings and conclusions and present recommendations for consideration by the Administration, the Legislature, as well as interested federal and state, tribal, and local government agencies, Tribal governments, other stakeholders, and the public.	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107137	I support Horse Haven Clean Energy Center permitting.	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
mhue	1107175	Decide Locally is Against the Wind Farm installation proposed on HHH. The DEIS comments are attached and convinces us more that this is the wrong location for a Wind Farm and the project needs to be withdrawn and the energy facility needs to find a new county. The DEIS was flawed, difficult to read and poorly marked. Pages printed off on charts deleted portions off after getting it printed. The applicant does not want to commit themselves with over 5000 "would" and 175 "will" seems like a lot of information is missing and inadequate. The DEIS left no buffers for wildlife corridor, shrub-steppe, distance for adverse health issue and no regard to the vast expensive diversified agriculture that will be severely impacted . We are against this project in Benton County Margaret Hue Decide Locally	General - Question for EFSEC	In accordance with WAC 197-11-455, "the draft EIS shall be issued by the responsible official and sent to any person requesting a copy of the EIS from the lead agency (fee may be charged for DEIS, see WAC 197-11-504)". On December 16, 2022, EFSEC notified the public of issuance of Draft EIS. The Draft EIS was available for public review on EFSEC website and physical copies were sent to local public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Copies of the Draft EIS along with the Horse Heaven Wind Farm Project Application for Site Certification, (EFSEC Application/Docket No. EF-210011) were also available for public review at 8 local libraries (including 6 different branches of Mid-Columbia Libraries) on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, as stated above, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. The term "would" is used in place of "will" in the EIS since the EIS approaches the narrative with a "Proposed" Project. If approved, the Applicant would be required to comply with all mitigation measures and conditions set by the approving agencies. Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility. Several opportunities were given to the stakeholders and the public to provide comments on the Project and Draft EIS.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Wildlife and Habitat	Information, including data provided in Figure 3.5-1, describes existing conditions and did not include buffers recommended as part of mitigation measures described in Section 4.6 of the EIS. Further, some data reviewed, such as the location of ferruginous hawk nests, is confidential and therefore could not be visually rendered onto figures. Wildlife corridors are shown on Figure 3.6-2. Biologists and experts from WDFW were consulted during the development of the dEIS including identification of sensitive areas. Figures and data provided in Chapter 3 are specific to existing conditions. Mitigation measures and buffers are described in Chapter 4, including those recommended for wildlife. Wildlife corridors are shown on Figure 3.6-2. The Pacific flyway is a broad area that supports bird migration from South America to the Artic. It covers a large portion of Washington State, as such, displaying on a map specific to the Project would not provide useful information. Mitigation measures proposed for wildlife have been included in Section 4.6 of the EIS.	4.6	n/a
			Water Resources	The EIS provides a discussion of the existing conditions for water resources and identifies their occurrence in section 3.4, including for runoff/absorption, ground water, and other water sources. The evaluation of project impacts, Applicant commitments, and proposed mitigation measures are provided in Section 4.4 for water resources. The EIS includes Watersheds and Water Resources in the Project Lease Boundary in Figure 3.4-1, including surface water in Badger Canyon and Coyote Canyon. Water for the Project would be obtained from an off-site supplier and no groundwater wells would be used for the site. Impacts to groundwater wells from the Project are not anticipated. The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation. The proposed Project results in limited increases in impermeable surfaces in the Lease Boundary and impacts to increase in surface water run off, including to Amon Creek are rated as low magnitude, short-term duration for temporary disturbance and long-term duration for permanent disturbance, unavoidable, and confined spatial scale. Impacts to soil erosion are provided in Section 4.2 and do not include natural erosion processes, only those directly related to impacts from the Project.	Section 3.4 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Vegetation	Habitat types and subtypes in the Lease Boundary are identified and described in Section 3.5.2 of the EIS. Impacts of the Project to habitat types are identified and evaluated in Section 4.5 with a summary in Tables 4.5.12a to 4.5.12c. Applicant commitments and identified mitigation measures are provided in 4.5.2.4. There are no requirements under the Act that requires buffers around the identified habitat types and subtypes that are impacted by the proposed Project. Where impacts were identified, mitigation offset ratios for habitat types and subtypes followed the WDFW Wind Powe Guidelines (2009), including increased offset for rabbitbrush shrubland recognizing this is an early seral shrub-steppe community. The offset ratios for habitat impacts were agreed upon with WDFW and are provided in Table 4.5.11. Plants that occur within the Lease Boundary at existing conditions are identified and described in Section 3.5, including invasive plants and noxious weeds and special status plant species. An evaluation of Project impacts on plants is provided in Section 4.5 with a summary in Tables 4.5.12a to 4.5.12c. Applicant commitments and identified mitigation measures are provided in 4.5.2.4. Section 1 (d) of WAC 197-11-444 refers to plants and animals as elements of the natural environment, which does not include agricultural crops, cultivated plants, or landscape plants. Rather agricultural crops falls under WAC 197-11-444 (2) Built Environment (b) Land and Shoreline Use (vii) Agricultural Crops. However, agricultural land within the Lease Boundary is provided in Section 3.5.2 as a habitat type. Within the Vegetation Area of Analysis (2 mile buffer around the Lease Boundary) National Land Cover Data was used to identify habitat types, which includes areas identified as cultivated crops and pasture/hay. For wildlife habitat these areas are not required for habitat offsetting based on the offset ratios in WDFW Wind Power Guidelines (2009) and as agreed by WDFW.	Section 3.5.2, 4.5, 4.5.2.4, Tables 4.5.12a to 4.5.12c, Table 4.5.11	n/a
			Recreation	1) and 2) The micrositing corridor is primarily sited on Private land that is not typically used for hunting.	4.12	n/a
			Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2 of the EIS. Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions. For aspects of the Project's design that may not be in alignment with Benton County Code 11.17.070 Growth Management Act Agricultural District or the Benton County Comprehensive Plan, the Washington Energy Facility Site Evaluation Council (EFSEC) would review discrepancies through an adjudicative process intended to resolve disputes between the local government and Horse Heaven Wind Farm, LLC (Applicant).	4.8.2	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS.	n/a	n/a
			Earth Resources	See Section 4.2 of the Final EIS, which discusses potential impacts to earth resources from the Project.	4.2	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	The location of KOP 10 has been corrected on the maps and on the associated visual simulation. Additional viewpoints and visual simulations have been included in the Final EIS including an additional KOP in Benton City. Additional mitigation including potential turbine removals have been proposed by the Applicant with additional turbine removals to be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	Corrected the location of KOP 10 on mapping and on visual simulation. New simulations included in updated analysis. Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the Final EIS
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1107183	We are very concerned about this proposed wind farm! We cannot see any value to our community in this proposal and in fact see only negative benefits for our entire community and specifically the many homeowners nearby! This would have a very negative impact on the value of homes nearby and create absolutely nothing positive for our community. Wind farms that serve to provide what little electricity can be produced for areas outside our community should not be placed here! We have plenty of hydro power and want this project to be stopped immediately.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107213	I am opposed to the wind turbine project at Horse Heaven Hills.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107214	1. The Wind Turbine - Solar Panel - Storrage Battery system is an excellent approach for adding to electricity supply especially surge capacity 2. Wind Turbine blades can & are being recycled in US and other countries 3. Agrivoltaics projects should be offered and supporting funding for demonstrations and/or project sought from USDOE National Renewable Energy Laboratory 4. Revenue shared with participating farmers will be very beneficial in managing revenue instability from impacts of market pricing and weather related crop damage. 5. Discuss with FAA their rule for not painting half a wind turbine blade black to minimize bird loss. Kathryn M Tominey, retired research scientist and former farm girl.	Wildlife and Habitat	Painted turbine blades are currently prohibited by Federal Aviation Administration (FAA) regulations.	n/a	n/a
Anonymous User	1107223	(Text of comments in uploaded pdf) Comments on Draft EIS for the Horse Heaven Wind, Solar and Battery Storage Project Laurie Ness Patrick Paulson The Draft EIS fails to meet the requirements of WAC 197-11-440, which requires the DEIS to •Include "[r]easonable alternatives shall include actions that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation." (WAC 197-11-440.5.b) •"Describe the principal features of the environment that would be affected, or created, by the alternatives including the proposal under consideration." (WAC 197-11-440.6.c.i) •"Describe and discuss significant impacts that will narrow the range or degree of beneficial uses of the environment..." (WAC 197-11-440.6.c.ii), and •"Clearly indicate those mitigation measures ... that could be implemented or might be required..." (WAC 197-11-440.6.c.iii) In our comments below we discuss environmental features, impacts, and mitigations the DEIS fails to address. Please note that we agree and support all comments submitted on 1/31/2023 by Trina Bayard, Director of Conservation, Washington Audubon for the Horse Heaven Hills DEIS. We also agree with the comments submitted by Debbie Berkowitz. 1. Failure to provide reasonable alternatives as required by the EIS framework WAC 197-11-440.5.b requires that alternatives presented in the DEIS "shall include actions that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation" [our emphasis]. The DEIS states (p. 4-95): ...It is predicted that Turbine Option 1 would result in a higher risk of collisions for small birds and raptors than Option 2 (GAL 2022; Appendix 4.6-1). Waterfowl may be more susceptible to collisions with the taller turbines in Option 2; however, raptors are reported to have higher exposure indices for shorter turbines than taller turbines and therefore are considered to be more susceptible to collisions with turbines under Option 1.... And (p. 4-173): The exposure index for ferruginous hawks is approximately 1.3 times greater for Turbine Option 1 (GE 3.03-MW) than for the other three turbine technologies ... In addition, Option 1 also requires a larger number of turbines, and therefore, it is expected that this option would result in a greater collision risk for ferruginous hawks ... Options 1 and 2 are also stated to have different potential impacts on Golden Eagles (p. 4-174), Great Blue Heron (p. 4-175), and other special status bird species. Since Options 1 and 2 have different environmental costs, they should be presented as Alternatives as required by WAC 197-11-440.5.b. 2. Failure to "describe the principal features of the environment that would be affected ... by the alternatives including the proposal under consideration." In this section we discuss environmental features not identified by the DEIS as required by WAC 197-11-440.6.c.i. WAC 197-11-444.1.d identifies "Plants and animals" as a feature of the environment to be considered by an EIS. This feature includes: (i) Habitat for and numbers or diversity of species of plants, fish, or other wildlife; (ii) Unique species; and (iii) Fish or wildlife migration routes. 2.1 Vegetation and failure to consider PHS Priority Features The VAA includes the Lease Boundary and a 2-mile buffer surrounding the boundary. The Lease Boundary includes the Wind Energy Micrositing Corridor (except portions of the corridor crossing an interstate highway) and the Solar Siting Areas. The DEIS fails to identify some PHS areas within the VAA such as the cliffs on Chandler Butte and many cliffs throughout the east west ridgeline of the project. Figure 1. Cliffs in VAA. In the discussion of priority habitats (Section 3.5.2.4) the DEIS notes that PHS may be a "particular habitat feature (e.g., cliffs, talus slopes)". The DEIS statement that "Shrub-steppe and Eastside Steppe Priority Habitats are presently limited in the ... surrounding VAA" is without basis since no field surveys were completed in the VAA outside of the Lease Boundary (Sect. 3.5.2.2). Due to lack of field studies, PHS features such as cliffsand talus slopes within the VAA were not identified. For example, the topographical map on p. 3-55 of the DEIS (see Figure 1) clearly shows cliffs (defined as a cliff "Greater than 7.6 meters (25 feet) high and occurring below 1524 meters (5000 feet)", PHS List p. 287) within the VAA. The topo lines show 10 foot changes in elevation, 3 topo lines would indicate a cliff. Error! Reference source not found. indicates cliffs just west of the radio facilities on Chandler Butte, within the VAA. Our personal observations show the presence of the Priority feature of Talus Slopes (PHS List p. 289) at the base of basalt cliffs within the VAA. Talus PHS features may contain PHS species and provide roosting habitat for bats. Examples of the talus slopes with their acreage are shown in Figure 2 and Figure 3. These are two examples of the many talus slope within the VAA. Figure 2. Talus slope in VAA adjacent to Lease Boundary. Figure 3. 2nd example of talus slope adjacent to Lease Boundary. Other examples of PHS within the VAA not identified by the DEIS include: •Freshwater Emergent Wetland and Riverine habitats along Yakima River near Benton City. •Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland, and Riverine habitats along Columbia River on eastern edge of the VAA. 2.2 Wildlife and Habitat The DEIS (p. 3-39) states "Field surveys in the Wind Energy Micrositing Corridor and Solar Siting Areas mapped two intermittent streams and 31 ephemeral stream channels, all of which are considered waters of the state." The DEIS fails, however, to include these waters of the state as wildlife habitat. The Benton County Code states that "Fish and wildlife habitat conservation areas ... include ... Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington" (BCC 15.08.070.a.22.vii). 3. Failure to "Describe and discuss significant impacts that will narrow the range or degree of beneficial uses of the environment or pose long term risks to ... the environment, such as storage, handling, or disposal of toxic or hazardous material" In this section we discuss impacts environmental features not analyzed by the DEIS as required by WAC 197-11-440.6.c.ii. 3.1 Vegetation The DEIS states that Agricultural land, Shrub/scrub, and grassland within the VAA may be affected by the proposal. Shrub/scrub habitat includes Dwarf shrub-steppe, Rabbitbrush shrubland, Sagebrush shrub-steppe, and Unclassified shrubland. The grasslands include Eastside grassland, non-native grassland, planted grassland, and unclassified grassland. In addition, the VAA may contain areas of Deciduous Forest, Emergent Herbaceous Wetlands, Evergreen Forest, Open Water, and Woody Wetland (pp. 3-68 to 3-69). In addition, the DEIS notes the potential of Woven Spore Lichen occurrences within the VAA. No analysis is given in the DEIS for impacts to the following environmental features identified in Section 3 of the DEIS: Deciduous Forest, Emergent Herbaceous Wetlands, Evergreen Forest, Open Water, and Woody Wetland. The analysis does not include PHS and other features that exist in the VAA outside of the Lease Boundary (such as the cliffs and talus slopes on Chandler Butte). 3.2 Wildlife and Habitat 3.2.1 Wildlife Habitat The impacts to the wildlife habitat consisting of the ephemeral streams and intermittent identified on p. 3-39 of the DEIS are not analyzed. Table 3.4-1 of the DEIS identifies 40 different 'interactions' between this habitat and the Wind Power Micrositing Corridors and Solar Siting Areas. Levick, et. al (2008) is a one source of the habitat function and values of this habitat that the proposed action may impact. The DEIS should include analyses of these impacts. In addition to the habitat described as vegetation (DEIS Section 3.5), the DEIS identifies additional wildlife habitat in section 3.6.2.1. The additional habitat includes a wetland. As discussed above, wildlife habitat outside the Lease Boundary was not physically surveyed and so habitat features within the VAA have not been identified or analyzed for impacts as required SEPA. These habitats include Freshwater Emergent Wetland, Riverine, and Freshwater Forested/Shrub Wetland. 3.2.2 Birds 3.2.2.1Impacts from Wind Turbine Operation The DEIS states (p. 4-156) that "In a synthesis of literature, Arnett et al. (2007) reported that bird mortalities are typically evenly distributed between nocturnally migrating passerines and resident birds." However, the cited literature instead states (p. 18) Based on data from the 14 studies, it appears that approximately half the reported fatalities at new generation wind power facilities are nocturnally migrating birds, primarily passerines, and the other half are resident birds in the area. This is different from being "evenly distributed", since nocturnally migrating birds are only present during migration. This implies that the impact of turbines is significantly higher for migrating birds than it is for resident species.	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Wildlife and Habitat	Impacts to ephemeral and intermittent streams are discussed in Section 4.4 of the EIS. The wetland located within the Lease Boundary is not within the temporary or permanent disturbance areas. The magnitude of impacts to watercourses was rated as negligible to low magnitude. Water obligate species, such as amphibians, were not recorded in the lease boundary. As such, the potential changes to watercourses were not carried through the wildlife assessment. The wetland identified in Section 3.6.2.1 is outside of the temporary and permanent loss and is not expected to be impacted. Impacts to watercourses are discussed in Section 4.4, which concludes negligible to low magnitude impacts to this resource. Aquatic obligate species have not been recorded in the Lease Boundary. As such, the analysis of impacts to these features was contained in Section 4.4 The EIS assesses the Project's potential impacts to bird and bat fatality in Section 4.6.2.2 and notes that the Project is expected to result in mortality to birds and bats. To mitigate impacts from mortality, the EIS proposes mitigation measures Wild-1, which would require the applicant to conduct two years of operational mortality monitoring and apply the results to developing additional mitigation measures. Wild-1 will be updated to provide additional clarity. There is limited data available regarding the impact of solar facilities on wildlife, including birds. As such, the potential impacts from the Project were extrapolated from published data from other locations. The Applicant would be required to conduct post-construction mortality surveys, which are not limited to the wind component of the Project. The results would be used for adaptive management by applying additional mitigation where the results of monitoring suggest an unexpected impact to avifauna. The impacts to special status species is included in Section 4.6.2.4 and the impact of solar facilities on special status species are analyzed in 4.6.2.6. These sections will be reviewed in the Final EIS and reference to mortality with solar arrays will be included where appropriate. Due to the lack of data regarding burrowing owl habitat use, the EIS includes mitigation measure Spec-4 requires that the Applicant conduct burrowing owl surveys prior to construction and use the results of these surveys to inform the final project layout. This mitigation measure requires the Applicant to avoid and mitigate impacts to burrowing owl burrows, if recorded. The dEIS describes mapped prairie falcon habitat in Section 3.6 and the potential impact on nesting in Section 4.6. Spec-8 requires the Applicant to conduct surveys for prairie falcon nests and apply buffers recommended by WDFW (Larsen et al 2004). The definition of magnitude is provided in Table 4.6-2. The Operation of the project is predicted to have a Medium magnitude impact on sagebrush sparrow (See Table 4.6-11b) as operation is predicted to result changes to the population over shorter or longer periods of time; however, are not expected to exceed the resiliency or adaptability of the population. This analysis was based on current information on sagebrush sparrow population declines, threats, and impacts of the Project. Painting turbine blades was considered; however, current FAA regulations do not allow this practice. Wild-1 and several species specific mitigation measures require the Applicant to monitor wildlife mortality and apply additional mitigation measures where mortality thresholds are exceeded. Wild-1 will be updated to provide additional clarity.	4.4, 4.6.2.2, 4.6.2.4, 4.6.2.5, Table 4.6-2	These sections will be reviewed in the Final EIS and reference to mortality with solar arrays will be included where appropriate; WILD-1 update to provide clarity on the monitoring and reporting process.
			Vegetation	The purpose of the of the VAA is to understand over a broader area what the occurrence and distribution of habitat is to better understand the extent of these ecosystems on the landscape. The VAA uses habitat data from the National Land Cover Database (NLCD) to map habitats within the VAA. One category within the VAA is "barren land" and this includes talus, scarps, etc. The data from NLCD does not specifically identify Priority Habitats but is meant to help understand the proportional area of shrubland and grassland habitats at a broader scale, as these are impacted by the Project. The NLCD is not meant to replace the habitat mapping provided by the Applicant. For specific impacts within the Lease Boundary the habitat mapping produced by the Applicant which includes a combination of imagery interpretation and ground field surveys provides a more accurate and detailed representation of the extent and occurrence of habitats, including priority habitats. No cliffs were identified within the Project Lease Boundary. The Priority Habitat database maintained by WDFW was also queried and no cliffs were identified in the Project Lease Boundary (Section 3.5.2.4). As no impacts are anticipated to occur to cliff ecosystems from the Project, no further assessment was made. Freshwater emergent wetland and riverine habitats along the Yakima River near Benton City occur within the VAA but are not anticipated to be impacted by the Project. Therefore, no further assessment was conducted. Freshwater emergent wetland, freshwater forested/shrub wetland, and riverine habitats along the Columbia River on the easter edge of the VAA is not anticipated to be impacted by the Project and no further assessment was conducted.	Section 3.5 and 4.5	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
		The DEIS references the same source to state "Mortalities occur year-round, peaking from April to October," but neglects to note the source states on the same page that For example, peak passerine ... during fall migration at Stateline in Washington and Oregon [citing (Erickson et al. 2004)]. Given the proximity of Stateline Wind Farm to the project site, this indicates potential high impacts to birds during fall migration. Also on the same page this source states "There is some concern that nocturnal migrating passerines may be compressed near the surface when cloud ceilings are low or when flying over high mountain ridges, increasing the risk of collisions with turbines." This indicates the need for additional monitoring of nocturnal migration and possibly curtailment during periods of high migration. 3.2.2.2Impacts of Solar Array Operation The DEIS states (p. 4-158) [our emphasis]: Kosciuch et al. (2020) reported taxonomic variability in the bird fatalities observed at different solar sites; however, mourning doves (Zenaida macroura), horned larks, and western meadowlarks (Sturnella neglecta) were reported at all sites. Mortalities of water-associated birds and water obligates occurred at most solar sites in the Sonoran and Mojave Deserts Bird Conservation Region but were less common in the Great Basin and Coastal California Bird Conservation Regions. Further, most of these fatalities involved ground-dwelling species (three out of four most common species detected) and were detected during the fall.... The DEIS fails to mention that the cited source includes data from only one facility located in the Great Basin and 2 facilities in Coastal California while the southwestern region contains data from ten facilities. It is misleading to conclude from this study that mortality of water-associated birds and water obligates are unlikely at the project site. (We're also annoyed that the DEIS downplays the importance of "fatalities involved ground-dwelling species" and fatalities "detected during the fall"). 3.3 Failure to discuss significant impacts on "Unique species" 3.3.1 Impact of Solar Arrays on Special Status Bird Species not analyzed None of the analyses of impacts to special status bird species (except for a casual mention for Tundra Swan) analyze the effect of mortality from Solar Arrays that was indicated by the DEIS on p. 4-158 citing Kosciuch et al. (2020). This study found Solar Arrays were associated with an "average annual fatality estimate of known and unknown cause per MW at [solar] facilities in desert [Bird Conservation Regions] to be 1.82 birds/MW/year". 3.3.2 Burrowing Owl The DEIS (p. 4-171) states "Surveys for burrowing owls were not conducted as part of the [Application for Site Certification]; therefore, it is possible that other burrows may exist within the Lease Boundary." Due to lack of field surveys, Burrowing owls were not considered during the siting of project components so the impact of the project on Burrowing Owls cannot be determined. The DEIS fails to meet the requirement to discuss significant impacts to Burrowing Owls as required by WAC 197-11-440.6.ii. 3.3.3 Prairie Falcon The DEIS (p. 4-177) states "PHS data report 12 occurrences of prairie falcon within 2 miles of the Lease Boundary, though none within the Lease Boundary (WDFW 2022a). Nine of the occurrences are nest sites." The DEIS does not report, however, that the Micrositing Corridors are adjacent to documented Prairie Falcon Breeding areas in cliffs at the Lease Boundary. Nor does the DEIS note these same corridors will directly impact likely Prairie Falcon foraging areas at this same location (See Figure 4, Figure 5, and Figure 6). The impact to Prairie Falcon should be rated as Unavoidable, High, and Local for these Micrositing corridors. Construction within the corridors adjacent to Prairie Falcon breeding areas should only occur outside of breeding season. Figure 4. Sightings of Prairie Falcon near Cliffs adjacent to Lease Boundary. Figure 5. Portion of DEIS Figure 3.5-1 showing Micrositing corridors encroaching on foraging habitat near Prairie Falcon nesting habitat. Figure 6. "PHS on the Web" indicates multiple breeding areas and nests for Prairie Falcon in the same area. 3.3.4 Sagebrush Sparrow The DEIS predicts that Micrositing Corridor Construction will "have a low-magnitude impact on sagebrush sparrows that is constant and unavoidable for habitat loss". Figure 7 shows the Micrositing corridors will fragment a portion of the largest expanse of shrubsteppe on or adjacent to the Lease Boundary. This will result in a high-magnitude impact on Sagebrush Sparrow that is constant and unavoidable for the proposed action. Figure 7. Micrositing Corridor Fragments Largest Expanse of Shrubsteppe in the Vicinity. Extracted from DEIS Figure 3.5-1, with added rectangle showing where corridor is located on shrubsteppe. 4. Failure to "Clearly indicate those mitigation measures (not described in the previous section as part of the proposal or alternatives), if any, that could be implemented or might be required, as well as those, if any, that agencies or applicants are committed to implement," along with the environmental benefits of the mitigation measures for birds and bats In this section we discuss mitigation measures not considered by the DEIS as required by WAC 197-11-440.6.c.iii. Arnett et. al (2007) (cited by DEIS in section 4.6) indicates current research on the effects of wind turbine curtailment to prevent collisions. The source also discusses current research on painting or coating blades to alert birds/bats of the turbine and ultrasonic devices to alert bats. The mitigations for the project should include monitoring of these research and implementation of any practices or techniques that is indicated to reduce impacts to birds and bats.	Water Resources	Intermittent and ephemeral streams within the Project Lease Boundary identified during field surveys are discussed in Section 3.4 and 4.4 Water Resources. The streams in the Project Lease Boundary are not known to support fish and are dry for most of the year. Mitigation measures applied for Water would reduce impacts to downstream fish habitat (e.g., erosion and sediment control BMPs).	Section 3.4 and 4.4	n/a

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patrick-paulson-richland	1107239	We've already submitted these comments, but I wasn't logged in and so am unsure if they were received. Here's the text of the uploaded pdf: Comments on Draft EIS for the Horse Heaven Wind, Solar and Battery Storage Project Laurie Ness Patrick Paulson The Draft EIS fails to meet the requirements of WAC 197-11-440, which requires the DEIS to •Include "[r]easonable alternatives shall include actions that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation." (WAC 197-11-440.5.b) •"Describe the principal features of the environment that would be affected, or created, by the alternatives including the proposal under consideration." 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The DEIS states (p. 4-95): …It is predicted that Turbine Option 1 would result in a higher risk of collisions for small birds and raptors than Option 2 (GAL 2022; Appendix 4.6-1). Waterfowl may be more susceptible to collisions with the taller turbines in Option 2; however, raptors are reported to have higher exposure indices for shorter turbines than taller turbines and therefore are considered to be more susceptible to collisions with turbines under Option 1…. And (p. 4-173): The exposure index for ferruginous hawks is approximately 1.3 times greater for Turbine Option 1 (GE 3.03-MW) than for the other three turbine technologies … In addition, Option 1 also requires a larger number of turbines, and therefore, it is expected that this option would result in a greater collision risk for ferruginous hawks … Options 1 and 2 are also stated to have different potential impacts on Golden Eagles (p. 4-174), Great Blue Heron (p. 4-175), and other special status bird species. 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Other examples of PHS within the VAA not identified by the DEIS include: •Freshwater Emergent Wetland and Riverine habitats along Yakima River near Benton City. •Freshwater Emergent Wetland, Freshwater Forested/Shrub Wetland, and Riverine habitats along Columbia River on eastern edge of the VAA. 2.2 Wildlife and Habitat The DEIS (p. 3-39) states "Field surveys in the Wind Energy Micrositing Corridor and Solar Siting Areas mapped two intermittent streams and 31 ephemeral stream channels, all of which are considered waters of the state." The DEIS fails, however, to include these waters of the state as wildlife habitat. The Benton County Code states that "Fish and wildlife habitat conservation areas … include … Waters of the state, including lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the State of Washington" (BCC 15.08.070.a.22.vii). 3. Failure to "Describe and discuss significant impacts that will narrow the range or degree of beneficial uses of the environment or pose long term risks to … the environment, such as storage, handling, or disposal of toxic or hazardous material" In this section we discuss impacts environmental features not analyzed by the DEIS as required by WAC 197-11-440.6.c.ii. 3.1 Vegetation The DEIS states that Agricultural land, Shrub/scrub, and grassland within the VAA may be affected by the proposal. Shrub/scrub habitat includes Dwarf shrub-steppe, Rabbitbrush shrubland, Sagebrush shrub-steppe, and Unclassified shrubland. The grasslands include Eastside grassland, non-native grassland, planted grassland, and unclassified grassland. In addition, the VAA may contain areas of Deciduous Forest, Emergent Herbaceous Wetlands, Evergreen Forest, Open Water, and Woody Wetland (pp. 3-68 to 3-69). In addition, the DEIS notes the potential of Woven Spore Lichen occurrences within the VAA. No analysis is given in the DEIS for impacts to the following environmental features identified in Section 3 of the DEIS: Deciduous Forest, Emergent Herbaceous Wetlands, Evergreen Forest, Open Water, and Woody Wetland. The analysis does not include PHS and other features that exist in the VAA outside of the Lease Boundary (such as the cliffs and talus slopes on Chandler Butte). 3.2 Wildlife and Habitat 3.2.1 Wildlife Habitat The impacts to the wildlife habitat consisting of the ephemeral streams and intermittent identified on p. 3-39 of the DEIS are not analyzed. Table 3.4-1 of the DEIS identifies 40 different 'interactions' between this habitat and the Wind Power Micrositing Corridors and Solar Siting Areas. Levick, et. al (2008) is a one source of the habitat function and values of this habitat that the proposed action may impact. The DEIS should include analyses of these impacts. In addition to the habitat described as vegetation (DEIS Section 3.5), the DEIS identifies additional wildlife habitat in section 3.6.2.1. The additional habitat includes a wetland. As discussed above, wildlife habitat outside the Lease Boundary was not physically surveyed and so habitat features within the VAA have not been identified or analyzed for impacts as required SEPA. These habitats include Freshwater Emergent Wetland, Riverine, and Freshwater Forested/Shrub Wetland. 3.2.2 Birds 3.2.2.1Impacts from Wind Turbine Operation The DEIS states (p. 4-156) that "In a synthesis of literature, Arnett et al. (2007) reported that bird mortalities are typically evenly distributed between nocturnally migrating passerines and resident birds." However, the cited literature instead states (p. 18) Based on data from the 14 studies, it appears that approximately half the reported fatalities at new generation wind power facilities are nocturnally migrating birds, primarily passerines, and the other half are resident birds in the area. This is different from being "evenly distributed", since nocturnally migrating birds are only present during migration. This implies that the impact of turbines is significantly higher for migrating birds than it is for resident species. The DEIS references the same source to state "Mortalities occur year-round, peaking from April to October," but neglects to note the source states on the same page that For example, peak passerine … during fall migration at Stateline in Washington and Oregon [citing (Erickson et al. 2004)]. Given the proximity of Stateline Wind Farm to the project site, this indicates potential high impacts to birds during fall migration. Also on the same page this source states "There is some concern that nocturnal migrating passerines may be compressed near the surface when cloud ceilings are low or when flying over high mountain ridges, increasing the risk of collisions with turbines." This indicates the need for additional monitoring of nocturnal migration and possibly curtailment during periods of high migration. 3.2.2.2Impacts of Solar Array Operation The DEIS states (p. 4-158) [our emphasis]: Kosciuch et al. (2020) reported taxonomic variability in the bird fatalities observed at different solar sites; however, mourning doves (Zenaida macroura), horned larks, and western meadowlarks (Sturnella neglecta) were reported at all sites. Mortalities of water-associated birds and water obligates occurred at most solar sites in the Sonoran and Mojave Deserts Bird Conservation Region but were less common in the Great Basin and Coastal California Bird Conservation Regions. Further, most of these fatalities involved ground-dwelling species (three out of four most common species detected) and were detected during the fall… The DEIS fails to mention that the cited source includes data from only one facility located in the Great Basin and 2 facilities in Coastal California while the southwestern region contains data from ten facilities. It is misleading to conclude from this study that mortality of water-associated birds and water obligates are unlikely at the project site.	Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	See response to 1107223	n/a	n/a
			Vegetation	The purpose of the of the VAA is to understand over a broader area what the occurrence and distribution of habitat is to better understand the extent of these ecosystems on the landscape. The VAA uses habitat data from the National Land Cover Database (NLCD) to map habitats within the VAA. One category within the VAA is "barren land" and this includes talus, scarps, etc. The data from NLCD does not specifically identify Priority Habitats but is meant to help understand the proportional area of shrubland and grassland habitats at a broader scale, as these are impacted by the Project. The NLCD is not meant to replace the habitat mapping provided by the Applicant. For specific impacts within the Lease Boundary the habitat mapping produced by the Applicant which includes a combination of imagery interpretation and ground field surveys provides a more accurate and detailed representation of the extent and occurrence of habitats, including priority habitats. No cliffs were identified within the Project Lease Boundary. The Priority Habitat database maintained by WDFW was also queried and no cliffs were identified in the Project Lease Boundary (Section 3.5.2.4). As no impacts are anticipated to occur to cliff ecosystems from the Project, no further assessment was made. Freshwater emergent wetland and riverine habitats along the Yakima River near Benton City occur within the VAA but are not anticipated to be impacted by the Project. Therefore, no further assessment was conducted. Freshwater emergent wetland, freshwater forested/shrub wetland, and riverine habitats along the Columbia River on the easter edge of the VAA is not anticipated to be impacted by the Project and no further assessment was conducted.	Section 3.5 and 4.5	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
		(We're also annoyed that the DEIS downplays the importance of "fatalities involved ground-dwelling species" and fatalities "detected during the fall"). 3.3 Failure to discuss significant impacts on "Unique species" 3.3.1 Impact of Solar Arrays on Special Status Bird Species not analyzed None of the analyses of impacts to special status bird species (except for a casual mention for Tundra Swan) analyze the effect of mortality from Solar Arrays that was indicated by the DEIS on p. 4-158 citing Kosciuch et al. (2020). This study found Solar Arrays were associated with an "average annual fatality estimate of known and unknown cause per MW at [solar] facilities in desert [Bird Conservation Regions] to be 1.82 birds/MW/year". 3.3.2 Burrowing Owl The DEIS (p. 4-171) states "Surveys for burrowing owls were not conducted as part of the [Application for Site Certification]; therefore, it is possible that other burrows may exist within the Lease Boundary." Due to lack of field surveys, Burrowing owls were not considered during the siting of project components so the impact of the project on Burrowing Owls cannot be determined. The DEIS fails to meet the requirement to discuss significant impacts to Burrowing Owls as required by WAC 197-11-440.6.ii. 3.3.3 Prairie Falcon The DEIS (p. 4-177) states "PHS data report 12 occurrences of prairie falcon within 2 miles of the Lease Boundary, though none within the Lease Boundary (WDFW 2022a). Nine of the occurrences are nest sites." The DEIS does not report, however, that the Micrositing Corridors are adjacent to documented Prairie Falcon Breeding areas in cliffs at the Lease Boundary. Nor does the DEIS note these same corridors will directly impact likely Prairie Falcon foraging areas at this same location (See Figure 4, Figure 5, and Figure 6). The impact to Prairie Falcon should be rated as Unavoidable, High, and Local for these Micrositing corridors. Construction within the corridors adjacent to Prairie Falcon breeding areas should only occur outside of breeding season. Figure 4. Sightings of Prairie Falcon near Cliffs adjacent to Lease Boundary. Figure 5. Portion of DEIS Figure 3.5-1 showing Micrositing corridors encroaching on foraging habitat near Prairie Falcon nesting habitat. Figure 6. "PHS on the Web" indicates multiple breeding areas and nests for Prairie Falcon in the same area. 3.3.4 Sagebrush Sparrow The DEIS predicts that Micrositing Corridor Construction will "have a low-magnitude impact on sagebrush sparrows that is constant and unavoidable for habitat loss". Figure 7 shows the Micrositing corridors will fragment a portion of the largest expanse of shrubsteppe on or adjacent to the Lease Boundary. This will result in a high-magnitude impact on Sagebrush Sparrow that is constant and unavoidable for the proposed action. Figure 7. Micrositing Corridor Fragments Largest Expanse of Shrubsteppe in the Vicinity. Extracted from DEIS Figure 3.5-1, with added rectangle showing where corridor is located on shrubsteppe. 4. Failure to "Clearly indicate those mitigation measures (not described in the previous section as part of the proposal or alternatives), if any, that could be implemented or might be required, as well as those, if any, that agencies or applicants are committed to implement," along with the environmental benefits of the mitigation measures for birds and bats In this section we discuss mitigation measures not considered by the DEIS as required by WAC 197-11-440.6.c.iii. Arnett et. al (2007) (cited by DEIS in section 4.6) indicates current research on the effects of wind turbine curtailment to prevent collisions. The source also discusses current research on painting or coating blades to alert birds/bats of the turbine and ultrasonic devices to alert bats. The mitigations for the project should include monitoring of these research and implementation of any practices or techniques that is indicated to reduce impacts to birds and bats.	Water Resources	Intermittent and ephemeral streams within the Project Lease Boundary identified during field surveys are discussed in Section 3.4 and 4.4 Water Resources.	Section 3.4 and 4.4	n/a
Anonymous User	1107245	Not in favor of the wind turbines. I live in badger canyon off goose gap rd.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107259	If we don't do this, we will set our extinction.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1107310	Invest in clean energy. It's time for change. Let's clean up our mess and make drastic improvements. I'm In support of the Horse Heaven Clean Energy Center.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous User	1107326	Please do not place these windmills at the Horse Heaven Hills. The footprint is too broad, the number of windmills is too many, and they will be too tall. We already have plenty of windmills in the Tri-Cities region. I suggest placing them closer to where the power will be used.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107329	Comments on the Draft EIS for the Horse Haven Wind Farm COMMENT 1 Richland residents that lived in this area during the initial stages of the Manhattan Project often mentioned the very high winds that were referred to as the termination winds. I moved to the Tri Cities in 1970. During the fall and spring seasons of 1970 to about 1985 there were often very high winds that would last for several days. However, because of climate change, the winds in this area have become much less in intensity and frequency. The trend is that the winds in the Tri Cities area are continuing to diminish with time. For this reason, the subject EIS should address the issue of climate change and recognize that at some point in time there may not be sufficient wind in the Tri Cities area to power the wind turbines. Because of climate change, the proposed project may not be viable. COMMENT 2 It has been said that the cost of one wind turbine is $20 million. This cost is not a life-cycle cost, It does not include such items as project site preparation, maintenance, repair, end of life disposal, recycling of the used hardware and equipment, etc. Therefore, the life-cycle cost of the proposed Horse Haven Wind Farm Project should be compared to the cost associated with other alternative green energy sources such a nuclear energy. The results of such a cost analysis may reveal that an alternative energy source is more desirable. COMMENT 3 It has been stated that wind turbines are built in China. The energy source for production of wind turbines in China is obtained from coal powered generation plants. Therefore, if the wind turbines for the proposed Horse Haven Wind Farm Project are built and fabricated in China, the contamination to the atmosphere resulting from coal powered generation must be assessed and evaluated to determine the impact to the environment.	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
DBerkowitz	1107350	I previously submitted a comment (uploaded a document), but wasn't registered so didn't get a confirmation email. I have now registered and am resubmitting the same document.	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Wildlife and Habitat	See response to 1106768	n/a	n/a
			Vegetation	The EIS provides an assessment of each project component individually (each solar field and the micrositing corridor) and for the comprehensive project considering all project component together. For vegetation including priority habitats and special status plant species, the assessment is provided in Section 4.5. Table 4.5-12a, 4.5-12b, and 4.5-12c show how the ratings for individual project components and the comprehensive project. Permanent disturbance of the east solar field and the comprehensive project were rated as high magnitude due to permanent impacts to priority habitat. While no significant unavoidable adverse impacts were identified, priority habitat was identified as a cumulative impact in Section 5.2.2. Details of specific Applicant commitments and identified mitigation proposed by EFSEC are provided in Section 4.5.2.4. One wetland was identified within the Project Lease Boundary, which is located 240 ft west of the micrositing corridor. This is greater than the required buffer distance of 40 ft by Benton County. The infrastructure sited near the wetland is a 240 volt transmission line. Other Project infrastructure is sited approximately 0.4 miles west of the wetland at the nearest point. Proposed mitigation include a wetland specific Stormwater Pollution and Prevention Plan for work near the wetland (W-6). Noxious weeds and other invasive plants, including cheatgrass are already present within the Project lease boundary including within Priority Habitat areas. A description of some of the existing stressors on Priority Habitat is provided in Table 3.4-5. The Eastside interior grassland varies in quality based on the presence of invasive plants, including cheatgrass, and evidence of cattle use in the existing conditions. The Revegetation and Noxious Weed Control Plan is designed to avoid the introduction of new invasive plants and minimize the spread of existing invasive plants through the life of the Project. As many invasive plants are present at existing condition, complete removal is not likely. However, treatment of invasive plant infestations would occur through all phases of the Project, and revegetation of areas of disturbance will focus on planting with native plants, as described in Section 4.5.2.4 Applicant Commitments and Identified Mitigation. The EIS attributed temporary and short term to habitat loss associated with temporary disturbance during construction that would be restored and revegetated following construction. Restoration of shrub-steppe and grasslands in arid environments is challenging. Section 4.5.2.4 Applicant Commitment and Identified Mitigation includes an As-Built Report and Offset Calculation whereby areas of temporary disturbance that do not meet the success criteria for revegetation after the established monitoring period would then be included as a permanent disturbance and offsets would be required at a permanent disturbance ratio. Vegetation selected for growth under solar panels must be conducive to the operation of panels. Short grasses are preferred to avoid interferences with the panels and to minimize fuel load to minimize risk of wildfire (Beatty et al. 2017, Native Vegetation Performance under a Solar PV Array at the National Wind Technology Centre). Based on the Application the maximum height of the top of the solar module would be 15 ft above ground with a rotational access 6.2 to 8.2 ft off the ground. Section 4.5.2.4 include the mitigation measure Tree Avoidance (Veg-1), which requires the Applicant to avoid trees during construction. If avoidance is not achieved, the number and location of trees removed would be provided to EFSEC and a mitigation plan would be developed. Disturbance to rabbitbrush is mitigated at the same offset ratios as a Class II habitat (e.g., shrub-steppe) for temporary and permanent disturbance. Rabbitbrush is offset as Class III habitat (e.g., eastside interior grassland) under the solar arrays. Habitat offset ratios are provided in Table 4.5-11.	Section 4.5 Table 4.5-12 a,b,c; 4.5.2.4; 5.2.2; 3.4.1.1; 4.4.2.1; 4.4.3	n/a
			General - Question for EFSEC	The term "would" is used in place of "will" in the EIS since the EIS approaches the narrative with a "Proposed" Project. If approved, the Applicant would be required to comply with all mitigation measures and conditions set by the approving agencies.	n/a	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Water Resources	One wetland was identified within the Project Lease Boundary, which is located 240 ft west of the micrositing corridor. This is greater than the required buffer distance of 40 ft by Benton County. The infrastructure sited near the wetland is a 240 volt transmission line. Other Project infrastructure is sited approximately 0.4 miles west of the wetland at the nearest point. Proposed mitigation include a wetland specific Stormwater Pollution and Prevention Plan for work near the wetland (W-6).	Section 3.4.1.1, 4.4.2.1, 4.4.3	n/a
Anonymous User	1107365	I'd like to register my opposition to this project and note the DEIS does not adequately address: -Wildlife and avian mortality monitoring -Wildlife and avian forage area reduction -Wildlife and avian breeding pattern disruption -Wildlife nesting area reduction -Wildlife corridor disruption -The setback of machines from known nesting areas of the ferruginous hawk is significantly smaller than the known range of the hawks -The loss of recreation areas available to the public -Visual aesthetics -Size and location of each specific machine is not enumerated -Future growth area of the region is eliminated -Reduction of hunting opportunities -The project does not displace fossil fuel use, but replaces hydro electric -The project has the largest footprint, with the largest wind machines and is closest to large population centers than any other project -Devaluation of property values -Degradation of the livability of the region and its impact on employers' ability to attract a workforce	Wildlife and Habitat	Wildlife and avian mortality are discussed in section 4.6.2 of the EIS. Mitigation measures Wild-1 and Wild-6 as well as several special status species mitigation measures were developed to monitor and manage wildlife mortality. Loss of wildlife habitat is described in Section 4.6.2.2. Loss is described as direct loss, which describes habitat permenently removed through operation due to citing of infrastructure (e.g. under a road), and indirect loss, which describes habitat that is not removed but may be reduced in function due to disturbance (e.g. noise). The EIS addresses the potential for the Project to deter wildlife from using habitat proximal to the project, including the potential for this habitat to be less functional for breeding. Potential behavioural disturbance is calculated as indirect habitat loss within a zone of influence. Mitigation Measure Hab-5 has been proposed to require the Applicant to measure and mitigate for Project specific indirect habitat impact. Wildlife corridors are discussed in the dEIS in Section 4.6.2.2. Mitigation measure Hab-1 has been recomended to require the Applicant to avoid corridors and, where avoidance is not possible, provide additional mitigation measures to reduce impacts to wildlife. The final siting and mitigation would be approved by EFSEC Mitigation measure Spec-5 requires the applicant to place turbines outside of core ferruginous hawk habitat. The definition of ferruginous hawk core habitat as 2 miles from a nest site was developed in consultation with experts from WDFW. In the event the Applicant requires placement of infrastructure within the 2 mile core habitat, the Applicant would be required to design additional mitigation and provide compensation.	4.6.2, 4.6.2.2	Hab-5, Hab-1
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. Based on IMPLAN analysis, the project is not expected to have a negative impact on the availability of general workforce within the region.	Appendix 4.16-1 and 4.16	4.16 - Discussion of Project impacts on property values
			Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions.	3.8.1.2	n/a
Anonymous User	1107375	We absolutely don't want to see turbines above our house. They're loud & we don't want them so close. Whatever power they generate won't even be benefitting our area (or state) & they don't generate enough power to make up for how much they cost & the damage they can do to wildlife. They're dangerous for birds & we have a lot of different types of hawks & owls in Badger Canyon that we don't want killed or injured. The picture I've attached is of a hawks nest that has been in this tree at Badger Canyon Rd & Badger Rd for many years. Every year this same pair of hawks have 2-3 chicks. We want to preserve our beautiful Horse Heaven Hills & we're NOT ok with the wind turbines being installed.	General- video or photo	Submitted video/photo received.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
Anonymous User	1107398	I oppose the horse Heaven wind project	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107403	Thank you for this opportunity. My name is Dr. James Conca, a retired research scientist and professor in the field of energy generation and transmission. I live in Richland, WA. The way the grid works in WA State is that it has to be balanced minute to minute, and hydropower is what is used to do this. Whenever wind energy comes onto the grid, it always displaces hydro. This is seen daily at BPA's website in their load-following graphs (see example figures below). The hydro must be dumped, it cannot be stored. Our dams are run-of-the-river, only Grand Coulee can store significant water. Dumping hydro when wind comes onto the grid is a significant loss of energy in a time when we are losing about 12 GW of generation by the closure of coal plants in WA and surrounding states. So there is no advantage of wind to our emissions goals. Before emplacing more wind, we must make useful the 7,100 MW of wind we do have by emplacing pumped hydro storage, the only grid-scale storage available at this time. Of course, we need to engage the tribes when we do this, something that keeps not happening. There needs to be 50MW/500MWh storage for each 2,000 MW of wind. Only then can wind replace coal, and only then should we start building more wind. This is detailed in the latest E3 Northwest Resource Adequacy Study. As it stands now, we are looking at a 26% risk of rolling blackouts beginning in 2026, after Centralia Coal Plant closes. Thank you, Dr. James Conca, Trustee Herbert M. Parker Foundation 2801 Appaloosa Way Richland, WA 99352 509-205-7541 jim@ufaventures.com	Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the EIS.	3.7.1.1 Power Generation and Demand	n/a
			General- video or photo	Submitted video/photo received.	n/a	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1107441	I live in the Badger Canyon area very near the proposed location of the Horse Heaven Wind Farm. I have lived at this location since 2000. I am very familiar with the wind conditions around this area. During what would be the highest energy usage times, mid winter and mid summer, the winds are typically light and variable. The high pressure weather zones that camp in our area are what produce our highest and lowest temperatures and they do not produce wind. In fact, the Farm is predicted to only provide 8% to 18% of it's name plate power rating (850MW) in January and August which are peak power usage times. When winds are strong and steady, typically spring and early summer, there is large volumes of runoff water available for the hydroelectric dams located on the Columbia and Snake rivers. This project has no local power benefit for us. There are huge quality of life and environmental cost in the placement of this wind farm. It far exceeds any benefits we receive locally. Just the ascetics alone will impact property values and peoples well being as their visual landscape is permanently changed. The view from my house will be greatly affected. When I look south, I will see the turbines instead of rolling wheat fields. When I look east in the evening I will see the shadow of turbines instead of the steadily rising shade line of the hills behind me. But there are also environmental costs. The project is in line with the path of migratory waterfowl. I observe many flocks of geese flying over our area in the direction to and from the planned wind farm location. I have attached a photo of a flock of geese that is within 0.5 miles of proposed turbines sites heading the direction of those sites. There is also a predatory bird (eagles, hawks, etc) population that has slowly recovered in our area that will be impacted by the turbines. Also, I understand the turbines will require water, I presume for cooling, during operation. Where is the water coming from? Which aquifer? How will water permits and rights be obtained? I am part of a Class A water system (BAR 80 Ranchettes) operating in Badger Canyon that services several households. Will the availability and quality of our water be affected? There are very recent studies being released about the adverse effects of the noise produced on animals, birds and marine mammals. We don't have whales nearby, but the studies are an indicator that there are real consequences for mammals. Are we going to be part of the study for adverse affects on people? Wind parks in general are not economically viable solutions to energy production. In the mid 1980's I worked for Flow Research of Kent WA. It's sister company, FLOW Wind, built vertical axis wind turbines and developed energy farms in California. At the time, federal subsidies paid for the production of power were available to encourage wind farm development. The subsidies were set to expire in 5 to 10 years when it was expected wind powered electricity would become economically viable. Well, almost 40 years later they still are not economically viable. It requires federal subsidies, state tax incentives and legislative/executive action for companies to develop wind energy. The energy company's business model is to profit on subsidies. And because legislative and/or executive action is required, this wind farm is being developed because of a political agenda, not a market need. When the market really needs wind power, no subsidies will be required. This wind park should not be built at the proposed location, the costs to our environment and community are too high. Thank you. Chris Lentz	Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation. A cooling system will be required for the Battery Energy Storage Systems. This will use an air cooling /air conditioning system or separate chiller plant for the BESS. Water cooling is not part of the operations for the wind and solar facilities as described in the ASC. Water will be sourced from an off-site supplier and trucked to the Site.	Section 3.4 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
Anonymous User	1107447	My name is Joetta Rupert. My husband and I are proponents of clean energy but are strongly against this project. Besides being an adverse visual impact to our community, there is no plan for the end of life for this project. Since these materials are not recyclable, what will happen to these monstrosities when they are no longer functional? Who will remove them if anyone? TriCities depends on the natural beauty of the ridge lines of the HHH for tourism dollars from hiking and biking, vineyards and wineries. The windmills will destroy the natural beauty of the Tri City area. This would create an undue hardship or economic impact on many companies and entities in the Benton and Franklin County area. This project will have negative impacts on agriculture, light pollution, and the natural habitat that inhabits these hills. And quite frankly we don't know the real dangers the windmills would place on the physical and mental health of the humans in the surrounding area. The TriCities area is already active in providing stable clean energy for Washington State.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Socioeconomics	An analysis of socioeconomics for the project did not identify any negative economic impacts. Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35-year operating life of the Project. The Project would pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	4.16 and Apendix 4.16-1	n/a
			Land and Shoreline Use	The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. Table 3.8-1A shows an analysis of the Project's consistency with the Benton County Comprehensive Plan's relevant goals and policies. For aspects of the Project's design that are not in alignment with the Benton County Comprehensive Plan, EFSEC would review discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant.	4.8.2, Appendix 3.8-1	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
Anonymous User	1107462	As resident of Kennewick for over 20 years, I am completely against constructing a wind farm so close to our growing community. There is no reason that this wind farm needs to be sited at the southern border of the Tri Cities. Eastern WA has plenty of unpopulated, open space available for these kinds of low density, inefficient energy producers. Appendix Q Visual Simulations Figure 8-1 a and b is what I would see every day as I drive to work, get groceries, walk the dog, mow my yard or look out of my living room windows. Instead of the greens of the wheat fields in spring slowly fading to different hues of yellow and brown over the summer, my view would be dominated by over 20 spinning, blinking monstrosities. Part of the Tri-Cities allure is the open, panoramic views of our vast shrub steppe ecosystem. 244 wind turbines would make a mockery of that. If I bought a house within view of a wind farm, then that would be a choice I made knowing full well going into the purchase. Placing the Horse Heaven Hills wind farm at its proposed location is an insult to many south Richland/Kennewick homeowners who chose this area specifically for the views of Badger Canyon and the feeling of openness as you look out of your house. I would much rather have a single Small Modular Reactor (SMR) nuclear plant built in the same general location than hundreds of inefficient wind turbines and solar panels. An SMR may not have as large a "nameplate" generation value, but we all now wind and solar never generate their nameplate values. And an SMR will give you consistent electrical output versus the variable nature of wind and solar. In the winter we can sometimes go weeks with the low cloud base and no wind. There would be zero output from Horse Heaven Hills wind and solar generators during those weeks. In closing, if the State of Washington feels the need to install renewable energy devices to meet carbon emission reduction goals, they need to do it far away from the major population centers of Eastern Washington. Jeff Banning	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
Karen Brun	1107538	I am opposed to this project. The quantity and height of the proposed turbines, and the proximity to a large metropolitan area plus smaller communities is unprecedented in Washington State, if not the entire country. At 2 miles, 52.6% more Benton County residents will be impacted 24/7 by this than the other 9 Washington counties combined where wind projects exist. At 4 miles, 110% more will be impacted. This is extremely disproportionate to the rest of the state. Tri-Cities residents, including 40% who are people of color, are being asked to sacrifice our landscape, wildlife and habitat, and our way of life for the benefit of those on the west side and beyond. This is social and environmental injustice in the extreme. Governor Inslee publicly stated at the recent Climate Change Conference in Egypt that he thinks NIMBYism has no place in Washington State. If that is his philosophy, then why are 11 of the 13 EFSEC projects completed, or in the pipeline, located east of the Cascades? And how many applications did EFSEC reject because they were to be located on the west side? If Governor Inslee insists that citizens in eastern Washington accept the ecological disruption and sacrifice of our lifestyles to forests of industrial wind turbines and seas of solar panels, he needs to have more justification than 100% clean energy bragging rights. He needs to follow the science. The Western Resource Adequacy Program has proven that wind power in Washington has an effective capacity of 8-11% when it's needed most. What off-taker is going to sign a contract for so little? This project is going to cost much more environmentally, socially, and economically than it will ever return. One just has to follow the money to see who truly benefits.	Socioeconomics	Sections 3.16 and 4.16 presents the affected environment and Project impacts for the Socioeconomic study area. The analysis of Socioeconomics includes an evaluation of Project impacts on people of color and low income communities.	3.16 and 4.16	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
TC Cares and Save Our Ridges	1107593	February 1, 2023 Via Email to EFSEC and the EFSEC SEPA Comment Page Web Form RE: Comments on the DEIS for the Horse Heaven Hills Wind Farm Project Draft Environmental Impact Statement On behalf of TC Cares and Save Our Ridges, and numerous individual reviewers, we are submitting the attached comments on the Horse Heaven Hills Wind Farm Project Draft Environmental Impact Statement. We do not believe this project should move forward in its current condition. The SEPA process is flawed and the DEIS is filled with errors, omissions, and misrepresentations regarding the Project's purpose and need, premise, financial feasibility and viability, proposed action, lack of feasible reasonable alternatives, lack of mitigation measures, and the significance of environmental and community impacts that cannot be avoided. Even in spite of these flaws and issues, the DEIS clearly demonstrates that the Project will bring about more harm than good. It is imperative that EFSEC search, develop, analyze and present alternative solutions that actually meet the need for power generation and do not impose such damage on the environment and the communities of Benton City, Richland, Kennewick, and Finley, as well as the rest of Benton County and the Tri-Cities and beyond. The following summarizes the list of contestable issues describing the many flaws of the project, the DEIS, and EFSEC's review of the project: The EIS is Poorly Done •The DEIS is lengthy, complex, piecemeal, filled with obfuscation, and contains a plethora of would's and may's vs wills. •The DEIS fails to describe the project, impacts, and mitigations with any certainty which makes a mockery of the SEPA process and abuses the SEPA process and the public. •The developer appears to be using the SEPA process to push a foregone conclusion without proper rationale and justification. •There are repeated and re-iterated errors, omissions, and misrepresentations. The DEIS contains cascading errors and omissions that render the document unusable for rational decision-making. •The DEIS is poorly done and uses out-of-date publishing technology. It contains poor maps that are too small and fuzzy with misleading coloration and not enough detail. It is very difficult to see the project component locations which means the public is unable to identify exact turbine locations in order to complete an accurate analysis of the impacts. We needed to create our own turbine location maps. •The DEIS fails to make use of digital GIS mapping tools to help the agencies explore and fully understand the environment and the impacts of proposed actions and alternatives. •The DEIS does not contain maps of the project that identify micrositing corridors and turbine locations suitable for a reasonably accurate analysis of the impacts. Integrity of the SEPA Process Is Questionable •The ASC was updated on December 1 without proper public notice. The scope and magnitude of the changes in the ASC Update on December 1, 2022, makes the entire SEPA Process questionable. The ASC should be revoked and reissued and the DEIS should be reissued with a new comment period. •EFSEC did not perform independent validation of the data contained in the many SEPA Elements of the Environment. Any proof of quality validation by EFSEC is lacking and there are a myriad of errors, omissions, and misrepresentations throughout the DEIS that should not be there if a validation had been properly performed. •The EFSEC consultant repeatedly just incorporated the developer's consultant's work verbatim using copy and paste. This raises serious conflict of interest issues since work done for the Applicant carries a risk of inherent bias in favor of the Applicant's project. •The DEIS lacks "impartial discussion" and is plagued from beginning to end by a noteworthy lack of detail and a verifiable lack of commitment to WAC requirements and mitigation. Purpose and Need for the Project •The DEIS fails to adequately establish a feasible purpose and need for this project. The project's funding and high price tag, as much as $1.7 billion, is not described and renders the project impracticable. •The DEIS does not contain a reasonably detailed description of how this project is being funded. Who is going to pay for this project and how? Who paid for the consultants and how much did they get paid? •No off-taker for the power has been identified at all. •The DEIS fails to explain the purpose and need for a 19-mile transmission line. •The DEIS fails to identify and analyze the impact the project will have on climate change. oThe DEIS fails to identify, document, and demonstrate that the project does anything at all to mitigate the cited near-term and long-term impacts from climate change. oThe DEIS fails to establish a pressing need for the energy that will be produced by this project. Proposed Action and Alternatives •The history of the power generation requests (BPA LGIP) are not consistent with the Project's nameplate power generation claims. They claim to have the necessary authorizations to provide 1150 MW, but the documentation only indicates 850 MW. •The project nameplate capacity of 1,150 MW is not supported by the record. The DEIS and the Updated Redlined ASC repeatedly describe the nameplate capacity in error. •Fails to justify the need for the proposed action at 1150 with interconnection capability, is only supported at 850 (LGIP requests), and fails to clarify the Boffer Canyon Substation limit of 350 MW. •The DEIS fails to identify and analyze the impacts the project will have on the Nine Canyon project. oThere has been no identification or analysis of the effects and impacts of a phenomenon known as blocking, which decreases turbine performance when an upwind wind project is too close to a downwind project. •The DEIS dismisses consideration of alternatives other than the proposed action without a rational basis and justification. •The DEIS fails to identify and evaluate the costs and benefits of any reasonable alternatives that can be demonstrated to feasibly attain or approximate the project's objectives, but at a lower environmental cost or decreased level of environmental damage. Impacts on People in the Affected Environment Visual •The DEIS fails to adequately identify and evaluate the visual impacts of the project on people in the Tri-Cities. •The DEIS Visual Assessment Report contains numerous errors, omissions and misrepresentations which render the document ineffective as a basis for decision-making under SEPA. •The DEIS fails to describe and evaluate the project based on the CESA Guidance 2021 regarding "Unreasonable or Undue Visual Impacts". •The DEIS visual simulations contain numerous errors and omissions and misrepresentations. •The DEIS fails to accurately describe the visual impacts of Option 1 and Option 2 on people. •The Applicant's commitments to mitigation of visual impacts in the DEIS are minimal, ineffective, and unacceptable. •The DEIS fails to recognize that visual impacts on Benton County are significant and disproportionate when compared to every other wind project in the State of Washington. •The DEIS visual assessment fails to apply the BLM and CESA Guidance adequately to describe and evaluate the impacts on people in proximity to the project. An area of analysis of 25 miles will be more appropriate in midwestern and western landscapes, open terrain, drier air, and larger wind projects (hundreds vs. dozens of turbines) creating a larger mass visible over greater distances. •The Applicant's, and therefore the DEIS's, visual assessment did not select Key Observation Points and Representative Viewpoints adequately. •The DEIS fails to describe and evaluate the value of the dark skies at night on the Horse Heaven Hills project. •The DEIS fails to describe and commit to commonly used, FAA-approved light mitigation technology utilizing aircraft detection lighting systems to mitigate light pollution.	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			General - Question for EFSEC	The term "would" is used in place of "will" in the EIS since the EIS approaches the narrative with a "Proposed" Project. If approved, the Applicant would be required to comply with all mitigation measures and conditions set by the approving agencies.	n/a	n/a
			Executive Summary	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comments noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including assessing views within 25 miles of the proposed wind turbines. The viewshed map from Appendix 3.10-2, correctly showing the analysis out to 25 miles, has replaced the maps in Chapter 4 of the EIS with additional locational information included. The current analysis includes the assessment of the three criteria identified in the CESA visual impact assessment process (see Section 4.10.1.1), as well as applying methods from the BLM VRM system, to identify Unreasonable or Undue Visual Impacts. Conformance with the Benton County Comprehensive Management Plan was also included in the EIS. The visual simulations, including from KOP 5, have been updated to remove atmospheric haze. Based on this analysis, the Project would still result in significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character. Ligthing comment noted and additional mitigation measure reccomendation will be considered.	4.10 / 4.10.2.4 Lighting	Will use correct turbine viewshed maps from Visual Technical Report with additional context information
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS. Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics.	n/a	n/a
			Air Quality	The FEIS will include an assessment of the net effect of the proposed project and no project alternatives on GHG emissions and their relationship to Washington State GHG reduction goals. The EIS did include a detail estimate of fugitive dust and construction emissions that were documented in Appendix 4.3-1. The FEIS will include a dispersion modeling analysis of project emissions including PM2.5 and PM10. The FEIS will include the requirement for an onsite Air Quality Mitigation Manager to monitor fugitve dust and quality assure the adequacy of construction mitigation and direct the application of additional mitigation or cessation of site specific activity if necessary to address excessive fugitve dust.	4.3	see column H
			Wildlife and Habitat	Special status wildlife species are described in Chapters 3.6 and 4.6. Chapter 3.6 describes how special status species were defined and Chapter 3.6 describes the potential special status wildlife species that could occur in the Horse Heaven Lease Boundary, habitat requirements, threats, and population status. Chapter 4.6 evaluates potential Project specific impacts on special status species with potential to occur in the Lease Boundary. The final locations of wind turbines were not available at the time of writing the EIS. As such, conservative assumptions were applied when evaluating potential impacts to wildlife and special status species. For example, the EIS acknowledges that the Project could result in indirect habitat loss due to disturbance to wildlife. The extent of indirect habitat loss (estimated at 0.5 miles) was measured from the micrositing corridor instead of a turbine location thereby accounting for various permeation of turbine placement. This approach overestimates the potential Project indirect impact as it does not account for micrositing of turbines away from sensitive habitat. A similar approach was applied when estimating the direct and indirect loss of special status species habitat such as Ferruginous hawk. Comment: "WDFW data may not include private property" This sentence was included to describe the limitations of available background data. WDFW maintains databases on known occurrences of special status species; however, data may be limited by where surveys have been conducted and data reported. Access is not necessarily available on private lands, as such, information pertaining to special status species on these properties may not be available. Lack of documented occurrence should not be taken as species absence. In lieu of confirmed species presence, the EIS assumes species presence based on the availability of suitable habitat. Comment: the EIS avoids mitigation commitments and defers to a selection of mitigation with TAC A technical advisor committee is a useful tool developed to bring technical experts together in management of environmental impacts. The purpose of the TAC would be to provide input to mitigation measures that can be implemented and adapted based on the results of pre-construction surveys, and operational surveys. While the TAC would provide input into project mitigation, the ultimate approval of mitigation measures would be with EFSEC. The Applicant will propose TAC members but EFSEC will approve the TAC members. Comment: Exposure indices were developed for 8 of 14 special status species Exposure indices were developed for species for which flight height data was collected during field surveys. Exposure indices could not be calculated for species that were not recorded during flight (e.g. singing, perched). These species are typically species that remain closer to the ground, moving between bushes (e.g. sagebrush sparrow) and are unlikely to interact with blades. Comment: extent of Acoustic bat surveys The design of baseline programs, such as acoustic surveys, were developed by the Applicant in consultation with WDFW. Comment: the EIS does not adequately assess burrowing owl: The EIS describes suitable burrowing owl habitat and potential impacts to the species in Chapters 3.6 and 4.6. As no species specific surveys were conducted, the EIS assumes species are present and will be impacted by the Project. Mitigation measure Spec-4 requires the Applicant to survey for burrowing owl prior to construction and apply set back buffers from active burrows. Comment: the EIS does not adequately assess townsend's ground squirrel: The EIS describes suitable Townsend's ground squirrel habitat and potential impacts to the species in Chapters 3.6 and 4.6. As no species specific surveys were conducted, the EIS assumes species are present and will be impacted by the Project. Mitigation measure Spec-12 requires the Applicant to survey for Townsend's ground squirrel prior to construction and apply set back buffers from active colonies. Comment: Table3.6-3 This table describes the current threats to special status species and is not specific to impacts from the Horse Heaven Project. The table is intended to provide background information on species population changes and pressures (threats) impacting populations. Comment on CPE cumulative report Red-lined changes to the Application and supplemental documents will be considered in the FEIS. Comment: the EIS fails to adequately identify mitigation The application of several of the recommended mitigation measures are dependent on the results of preconstruction surveys and final turbine siting. The mitigation measures will require the applicant to provide EFSEC with additional information on species distribution facilitating a better understanding location specific impacts and application location specific additional measures if required. For example, Spec-5 requires that project infrastructure be kept 2 miles away from Ferruginous hawk nests unless the Applicant is able to substantiate why infrastructure needs to encroach on this buffer area and EFSEC is satisfied that additional mitigation measures proposed by the Applicant (such as additional habitat compensation) is sufficient. Comment: EIS makes no mention of the elimination or relocation of turbines in wildlife corridors: The text cited in the comment are Applicant Commitments. The EIS recommends additional mitigation measures be required to supplement the Applicant Commitments. These include Hab-1 which requires the Applicant to site all Project features outside of modelled movement corridors. The measure requires that EFSEC is provided with rationale for any components within modelled corridors along with a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. The final Project design and mitigation plans would be resultant of additional studies, reviewed and approved by EFSEC. Comment: WDFW letter regarding impacts of the Project The EIS provides an assessment of impacts to wildlife and proposes mitigation measures to reduce the magnitude of those impacts; however, residual impacts to wildlife will remain. This is notable in the characterization of impacts in Tables 4.6-11a,b,c. These tables note that the magnitude of impacts to wildlife movement are predicted to be medium, meaning the impact is predicted to result in a defined change that could alter populations The TAC would be established to provide input and expert guidance on turbine siting and mitigation measures. EFSEC would be responsible for approval of the final layout, adaptive management, and mitigation plans.	4.6, Table 3.6-3, Tables 4.6-11a,b,c.	n/a
			Introduction	Comment acknowledged and is included in the administrative record for the EIS..	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
		Population •The DEIS fails to characterize, analyze, or provide enough information to allow reviewers to quantify the level of impact to population. •The DEIS fails to accurately identify and quantify that a large number of mid-range viewers, in particular, are impacted. There is no substantiative mitigation offered. •The DEIS fails to identify and evaluate the Benton County policy goals meaningfully and then fails to recognize the importance that the features hold for the County and its residents. •The DEIS fails to describe and evaluate the visual impacts on wineries. •The DEIS fails to accurately describe and evaluate the scenic resource attributes and sensitivity levels. •The DEIS does not accurately describe and evaluate the location, proximity, and impact on people who live in close proximity to the project. The distances described in the DEIS are in error and misrepresent the real conditions found at the present time. •The ASC and the DEIS fail to identify and evaluate the impact of the project and feasible alternatives using a suitable analysis of population within the affected environment. Fugitive Dust Emissions •The DEIS fails adequately identify, describe, and evaluate the significant and unhealthy adverse impacts fugitive dust emissions that will be caused by the project. •The DEIS fails to identify, describe, and evaluate feasible alternatives that can reasonably control and mitigate the health hazards from the fugitive dust emissions caused by the project. •The DEIS fails to adequately identify, describe, and evaluate that unacceptable conditions will occur from the road construction disturbance and cause significant environmental impacts that will affect over 100,000 people in the Tri-Cities. Project monitoring of PM2.5 and PM 10 is inadequate. •The DEIS does not provide for adequate project air monitoring and mitigation plans do not identify and commit to any increased monitoring of PM 10 and PM 2.5. Wildlife •The DEIS fails to describe and evaluate special status wildlife and their habitats. •The DEIS contains numerous errors, omissions, and misrepresentations regarding the project wildlife resources and the impacts on wildlife and their habitats. •The DEIS assessment of wildlife is shallow and fails to adequately describe and evaluate the significant near-term and cumulative impacts the project will have on 20 special status wildlife species (two are endangered) and on their habitat and prey. •The DEIS ignores and disregards the mitigation recommendations in the several Washington Department of Fish and Wildlife letters. •The DEIS fails to identify and evaluate specific turbine locations that are known to cause significant impacts. •The DEIS fails to propose or even contemplate any remedy if that remedy entails turbine elimination or relocation. •The DEIS makes no mention of the elimination or relocation of turbines located in essential wildlife corridors that preserve connectivity of wildlife habitat and foraging areas. •The DEIS does not identify, describe, and evaluate wildlife resources, in particular special species, outside the boundary area even though they are clearly in the affected environment under the WAC. •The DEIS fails to evaluate impacts the project will have on wildlife outside the project boundary. •The DEIS contains no analysis of cumulative effects to habitat, especially the east/west wildlife corridor along the ridgeline of the Horse Heaven Hills. Inadequate Mitigation •The DEIS avoids mitigation commitments and defers the development and selection of mitigation measures to the FEIS and a Technical Advisory Committee selected by the Applicant. •The DEIS does not include an adequate planning horizon that considers mitigation. •The DEIS fails to provide adequate information about the indirect and cumulative impacts from the proposed action, and any reasonable feasible alternatives. •The DEIS fails to identify and describe reasonable measures that can be taken to mitigate and minimize the visual impacts on the environment. •The DEIS fails to adequately identify and describe effective mitigations for wildlife habitat and special species. The Horse Heaven Hills Project isn't green at all. The project need for the project is unproven and will force dependence on giant, mechanical monsters which have very little impact on climate change at all. This project has nothing to do with protecting the earth from the impacts of climate change and power. Instead, it is dedicated to corporate profits at the expense of the public and the impact on the local environment. Spending $1.7 billion dollars on this project, much of it is taxpayer money, is irresponsible, unnecessary, unacceptably damaging and wasteful. The complete version of the comments are provided in the attached pdf file. This file is also being transmitted to EFSEC via email with attachment. The file can also be downloaded here: https://presari.com/s/T92230000463680 If you have any problems receiving and opening the file successfully please let me know. Paul J. Krupin	Energy and Natural Resources	The proposed Project meets the definition of an "alternative energy resource" that includes "wind" and "solar". EFSEC's review of the proposed Project is guided by RCW 80.50.010 which states that it is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change. The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility.	1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities 1.3 Purpose of Proposed Action	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Land and Shoreline Use	The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. Table 3.8-1A shows an analysis of the Project's consistency with the Benton County Comprehensive Plan's relevant goals and policies. For aspects of the Project's design that are not in alignment with the Benton County Comprehensive Plan, EFSEC would review discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant. A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.	4.8.2, Appendix 3.8-1	n/a
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. Because of confidentiality, the EIS cannot disclose the locations of cultural resources, such as archaeological sites and Traditional Cultural Properties.	4.9	n/a
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation. According to Appendix J the Wallula-Dodd Road Water System would be willing to enter into a contract with the Horse Heaven Project to supply the required water for construction.	Section 3.4 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Public Health and Safety	The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			Earth Resources	Comment acknowledged and is included in the administrative record for the EIS	4.2	n/a
Anonymous User	1107639	We do not want, support or desire windmills and solar panels in Benton County WA	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Schaef1	1107667	These wind turbines will devalue the property throughout this area. We have hawks and other wildlife that will be impacted in a very negative way by killing these birds with one hawk species that is endangered at this time. The noise and reflection from blades will also be a problem. I have lived here for 30 years and it is not windy win the months that energy is needed most. Need to go elsewhere. Sharon Schaefer	Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS. Potential Project impacts on wildlife and ambiant noise are comprehensively discussed in the EIS. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107703	We are opposed to such intrusion to the beauty that is the Horse Heavens, and home to several species of wildlife.	Wildlife and Habitat	Impacts to wildlife species are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1107732	I emailed to speak, and I was never called upon. The hearing was closed around 7:40p. EFSEC should have an in person DEIS Hearing in the Tri-Cities, accommodate non-English speaking residents, and have the DEIS available in Spanish. Also, the West Pasco Library didn't have the DEIS available like the downtown location did.	General - Question for EFSEC	SEPA guidelines and Washington Administrative Code do not specify that Draft EIS should be published in any other languages than English. However, EFSEC has completed their due diligence in notifying the public by publishing English and Spanish notices, and English and Spanish factsheets. Additionally, EFSEC phone number, email address and mailing address were provided in the notice of issuance of Draft EIS. EFSEC did not receive any requests for Spanish translation of Draft EIS during the public comment period. In accordance with WAC 197-11-455, "the draft EIS shall be issued by the responsible official and sent to any person requesting a copy of the EIS from the lead agency (fee may be charged for DEIS, see WAC 197-11-504)". On December 16, 2022, EFSEC notified the public of issuance of Draft EIS. The Draft EIS was available for public review on EFSEC website and physical copies were sent to local public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Copies of the Draft EIS along with the Horse Heaven Wind Farm Project Application for Site Certification, (EFSEC Application/Docket No. EF-210011) were available for public review at 8 local libraries on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, as stated above, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies.	n/a	n/a
Anonymous User	1107739	I am opposed to the wind project- The damage done by this project outweighs any short term job opportunities mentioned during the public forum. Harm done to wild life, the environmental impact once a windmill is put out of commission, aesthetics are appalling & definitely not least is the unknowing potential of health issues for people with this project being so close to homes & the community. Kellie Hamilton	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Public Health and Safety	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Schaef2	1107741	The proposed wind farm that is being shoved at us in try cities wa will be unsightly, cause unforeseen health issues that have not been addressed not to mention noise pollution, flashing strobing lights that are unhealthy for people that have epilepsy which they will have seizures from the strobing light. When power is needed most is in the winter and heat of summer which is when there is no wind moving to produce power. The needless deaths of hawks and owls and any migratory birds that are coming through this area which is migratory flyway. No one has addressed the loss of land values that will created by the unsightly monstrous tall towers which noise cam travel miles.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of Project lighting are discussed in Section 4.10.2.2.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Anonymous User	1107745	LISTEN TO THE HEART OF THE TRI CITIES. NO WIND TURBINS. DO WHAT IS RIGHT, SAY NO TO THIS AT THIS TIME. THANKS	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107748	I am against the wind farms going in. They are an eye sore, they harm the wild life and will devalue our properties. They are loud and the little bit of electricity they make doesn't go to serve our area.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Anonymous User	1107749	I am opposed to the Horse Heaven wind project. Please see enclosed document.	Wildlife and Habitat	Impacts to Golden eagle were addressed in section 4.6.2.4 of the EIS, including potential for golden eagle to collide with the Project.	4.6.2.4	n/a
			Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions.	3.8.1.2	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Noise and Vibration	Noise and vibration impacts are addressed in Seciton 4.11 of the EIS. Neither noise nor vibration are expected to cause impacts detrimental to human health. The affect of local topography on noise and vibration was included in the noise impact analysis.	4.11 (Vibration and LFN)	Revise FEIS to directly address Vibration and LFN.
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
			Socioeconomics	Project location is selected based on several factors including but not limited to viable above-average wind speeds in the area, sufficient flat area and solar irradiance to site solar PV panel, proximity to existing transmission lines and willingness to participate in the Project. Sections 3.16 and 4.16 present socioeconomics conditions and impacts on socioeconomics including effects on people of color and low-income communities.	1.3, 3.16 and 4.16	n/a
Anonymous User	1107754	Horse Heaven Draft EIS Comment: The Draft EIS is incomplete. Further study is essential and expected to be produced to protect the Horse Heaven Hills environment. In reference to just one highly significant impact regarding bird kill analysis, the firm of Golder Associates says at the end of their data summary regarding wildlife mortality: "It is important to acknowledge that there is uncertainty associated with these conclusions related to conflicting results in available published scientific studies, lack of studies at turbines within the range of heights considered for the Horse Heaven Wind Farm, and potential for substantial variability in wildlife mortality based on local factors (e.g., bird abundance, species composition, topography, habitat, spatial arrangement of turbines). These sources of uncertainty limit the confidence of predicted wildlife mortality risk associated with the two turbine options." Therefore, it is beyond dispute that at a minimum a pause must be placed on the approval process and additional studies commence that can produce confidence in the predicted wildlife mortality risk. It is unacceptable that mortality is assumed to be an acceptable reality and intolerable that this project moves forward without clearly understanding the scope of the expected mortality to the precious wildlife and habitats of the Horse Heaven Hills, some of which are being pushed to extinction. Yesterday we watched a large flock of birds heading from the Columbia River over Badger Mountain. Their path of travel was taking them smack into the middle of where you are considering placing the turbines. We commented that these birds and their ancestors have be making this flight for many thousands of years, driven by their instinct. Now in a matter of a year or two they could be flying right into these proposed whirling blades that will slice them up and scatter their remains over our landscape, for no good reason. I'd like to ask EFSEC members the following question: If you were driving down one of our roads you might encounter a flock of geese and other birds walking across the roadway. What would you do. I'm sure you'd take your foot off the accelerator and place it on the brake pedal. I've seen this happen countless times around here and people always stop and patiently wait for the birds to make their crossing. You need to take your foot off the accelerator and move it to the brake on this project. Stop this project before the slaughter of innocent wildlife begins. There is nothing "clean" about the proposed project, in fact, the use of that term is a mockery of reality. The Horse Heaven Hills is a treasure in the State of Washington and needs to be preserved not desecrated and discarded in the rush to create wealth for the developer and send the costly and inefficient energy out of the area to users that should face the reality of improving conservation and local production of their own energy sources. The gigantic turbines considered for this project were originally designed for offshore use. That is where these turbines belong, off the coast of where the energy will be consumed. In closing, we must see an irrevocable, damage compensation bond in place before any approval. Undoubtedly, some property owners within the viewshed and noise and flashing light areas of the turbines will experience a decline in property values and health damage. Therefore, an irrevocable bond of at least 2 billion dollars needs to be in place before construction begins to provide compensation to property owners and injured parties for these losses and damages when they occur. As for the individuals claiming the electrical and general construction jobs justify the wind farm project but consider how many jobs will be lost if the turbine project goes forward. A large hotel has already cancelled plans to build in the Southridge area, citing the viewshed of the wind farms as a reason for not building. This will also be the case for the single-family homes that will not be built within the view area of the wind farm over the years to come. Far more jobs will be lost than gained through this ill-conceived wind farm project. We are firmly opposed to this project in any form.	Wildlife and Habitat	The EIS assesses the potential mortality impacts on avifauna; however, the estimated impacts were extrapolated from data on mortality from other wind project. As such, there remains uncertainty in the actual magnitude of mortality associated with the Project. Mitigation measures have been proposed to monitor mortality rates and adjust mitigation measures in response to higher than predicted mortality rates.	4.6.2.4	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Socioeconomics	Appendix 4.16-1 of the EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. This analysis did not identify any negative economic impacts. The impact of wind farms on property values is addressed in the EIS.	Appendix 4.16-1 and 4.16	4.16 - Discussion of Project impacts on property values

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1107761	Please do not approve the HHH massive turbine wind project.	General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period.	n/a	n/a
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	Section 3.4.1.5 and Section 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Wildlife and Habitat	Birds Pacific Flyway and Wildlife: The EIS assesses the potential for the Project to impact birds and other wildlife in Section 4.6. This section discusses impacts from habitat loss, disturbance, barriers to movement, habitat fragmentation, and mortality. The Project is expected to result in mortality to avifauna including birds and bats. The rate of mortality is presented in Section 4.6 as an estimate of number of mortalities per MW per year. These rates are estimates based on adjacent wind power project mortality rate calculations. The Applicant will be required to conduct post construction mortality monitoring (Wild-1) and provide adaptive management (e.g. curtailment) in the event that mortality rates exceed predictions. Additional mitigation measures could be specific to times of year (e.g. migration), weather conditions (e.g. fog), or specific turbines. TAC: The purpose of the TAC would be to provide expert input and guidance to Project refinements such as turbine placement and mitigation. While the TAC would provide input and advice, EFSEC would be responsible for final approval of the project layout and mitigation plans. The TAC mitigation measure will be refined to describe the role of a commitee prior to operation and during operation.	4.6.2.5	Hab-4
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Energy and Natural Resources	The proposed Project meets the definition of an "alternative energy resource" that includes "wind" and "solar". EFSEC's review of the proposed Project is guided by RCW 80.50.010 which states that it is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change. The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the EIS.	1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities 1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
			Land and Shoreline Use	The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. This includes voluntary applicants such as the proposed facility. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 and associated regulations. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout to choose to apply for site certification through EFSEC (RCW 80.50.060 (2)). For aspects of the Project's design that may not be in alignment with Benton County Code 11.17.070 Growth Management Act Agricultural District or the Benton County Comprehensive Plan, the Washington Energy Facility Site Evaluation Council (EFSEC) would review discrepancies through an adjudicative process intended to resolve disputes between the local government and Horse Heaven Wind Farm, LLC (Applicant).	1.2.3, 4.8.1	n/a
			Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Anonymous User	1107771	After listening to the public comments just now, I am glad to see people voicing their opinions on this proposed project, especially the con's. I only wonder where they were when Nine Mile Wind Project went in. As for the visual and light pollution people say these turbine will bring to our view shed, where were they when our view shed of our rolling hills are now being adorned with houses that have decimated our view as well as all the light pollution they create. They claim to be concerned with how this wind farm will hurt tourism in our area but have no concern for tourism with number one most contaminated and hazardous site in North America, Hanford, in our backyard. I noticed no one spoke about the farmers who own this land and have agreed to these wind mills on their property, should they have this right? I am in favor of nuclear energy and since our local nuc plant and the power it produces was brought up, my understanding is none of that power produced stays locally. I believe this project will create family wage jobs in our cummities for years to come and will be an economic boon for our area and thats why I speak in favor.	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107772	see attached	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. EFSEC considers all submitted comments on the Draft EIS and public opnion in its decision making and recommendation.	n/a	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Attorney General of Washington Environmental Protection Division	1107773	Please see attached.	Wildlife and Habitat	The EIS indicates that the project could result in a similar rate of bird mortality as the Nine Canyon project. This Project example was given as a surrogate to estimate mortality based on the proximity of the projects and similarity in habitat types. However, it is noted that even projects that are similar can have variability in mortality rates. The EIS reports the estimated mortality rate (2.6 birds per megawatt) at the Nine Canyon Project as well as the number of reported mortalities from the same project (n=22). Bird mortality rates are estimated based empirical data, such as carcass surveys, corrected for factors such as scavenger removal and searcher efficiency so the number of carcasses found during surveys is not the same as the number of birds that have been killed by the project. The bird collision rate is expected to vary between projects based on bird abundance and diversity in the project area, proximity of a project to bird migration areas and unique habitat, topographical features of the project area, and project features, such as turbine height and rotor sweep. The Applicant has proposed two different possible turbine heights (e.g. 244 smaller turbines or 150 larger turbines) which will likely affect the number of bird mortalities as there is some literature suggesting that shorter turbines may increase bird mortality per MW (see Golder 2022). This variation is apparent in wind power bird mortality literature. For example, bird collision estimates from various wind power sites across the U.S. and Europe range from 0 to 30 collisions per turbine per year (reported in Zimmerling et al [2013]). In their study of bird mortality rates at wind project in Canada, Zimmerling et al (2013) found a similar range of 0 to 29 birds per turbine per year. Based on the averages reported by Zimmerling et al (2013), the Project could result in 0 to 7,320 mortalities per year (based on 244 turbines). Using the number of bird fatalities at the Nine Canyon Project, which is understood to be a smaller project, the Horse Heaven Project could result in an upper estimation of 2300 bird mortalities per year. However, it is important to note that these numbers require context. In general while wind turbines are a source of mortality, Erickson et al (2014) reported that the total turbine-related mortalities from currently developed wind farms (circa 2014) constituted a small percentage of the total population size of small birds (<0.045%), which is not predicted to lead to population level impacts . The FEIS will be updated to remove the reference to the 22 carcasses found at the Nine Canyon Project as it is understood how the number may be confounded with mortality rates. Using estimated bird mortality rates are a useful tool to compare impacts between projects as it provides a mortality rate per MW. An estimated range of bird mortality using the 2.6 birds per megawatt rate provided for Nine Canyon Project as will also be provided . The Applicant has committed to an adaptive management process to address uncertainty in the impacts of the Project on bird and bat mortality. Under their proposed Bird and Bat Conservation Strategy, the Applicant commits to incorporating the adaptive management approach in coordination with the TAC prior to Project operation. To provide some specificity to this approach Mitigation measure Wild-1 will be updated to provide additional steps to be taken in the event the Project results in high bat mortality. The potential population effects of wind developments on tree roosting bats, predominately hoary and silver-haired bats are discussed under section 4.6.2.2 of the EIS. This section notes that population level impacts to these species is possible as the number of wind farms increase. The purpose of the Project specific cumulative effects assessment is to consider how the Project may interact with regionally occurring existing and reasonably foreseeable projects in order to consider whether further adaptation or mitigation measures can be applied to reduce these regional effects. Population level cumulative effects assessment or an industry wide cumulative effects assessments are outside of the scope of the EIS. Pronghorn Pronghorn antelope have been recently re-introduced to the region and the current population is generally concentrated in Yakima County with some occurrences in Klickitat and Benton Counties. Data obtained by aerial surveys reported in Fidora et al (2019, 2021) report observations of pronghorn antelope on the eastern boundary of the Project with some observations in 2021 occurring in the Lease Boundary. While available data on the movement patterns of the Washington State pronghorn antelope population are limited, results reported in Fidora et al (2019, 2021) could suggest the herd is expanding its range eastward. However, as the species has been recently re-introduced there is currently no published established or modeled pronghorn antelope movement corridors in the Lease Boundary. The modeled movement corridors developed by the Washington Wildlife Habitat Connectivity Working Group are based on species specific models, which did not include pronghorn antelope. As such, based on the information available, it is not understood that the Project would interact with established antelope migration routes. In the ASC, the Applicant indicted that fencing is required for security purposes consistent with WAC 463-60-275: The application shall describe the means employed for protection of the facility from sabotage, terrorism, vandalism and other security threats. As such, the purpose of the fencing around solar arrays is to limit the access to these areas by people. While the fence can be risen by 4 inches to allow access for small animals, it understood that the fencing should remain close enough to the ground to serve its function. To accommodate movement by pronghorn antelope the fence would need to be raised to approximately 18 inches (46 cm), which could negate its function for safety and security. Finally, as the solar arrays are not expected to prevent pronghorn antelope movement and are not expected to result in substantial alteration of existing occupied pronghorn antelope habitat it is not clear that the population would benefit from being able to access habitat around the arrays. Allowing pronghorn antelope access to the arrays could increase interactions with Project structures and result in damage or injury. In the ASC, the Applicant included a commitment to minimize enclosed areas. Mitigation measures Hab-6 allows EFSEC to approve final design, including fencing. The proposed turbine and solar array locations predominately avoid Townsend's ground squirrel high suitability habitat (modelled as high to highest habitat concentration areas) and overlaps a medium habitat concentration area. These HCAs were developed based on concentrations of modeled suitable habitat and does not indicate documented species presence. Mitigation measure Spec-12 will require the Applicant to conduct pre-construction surveys for Townsend's ground squirrel to facilitate management of habitat and colony impacts. Spec-12 will be updated to provide additional clarification regarding Townsend's ground squirrel mitigation. Mitigation measures Hab-1 was designed to require the Applicant to provide additional impact management and mitigation for Project components in modeled movement corridors. The option of including open bottom culverts will be added as an example of a feature that may be considered to facilitate movement.	4.6	Update discussion on bird migration to describe potential avoidance distances. Wild-1 will be updated Spec-12 will be updated
			Chapter 1 - Project Background	In accordance with RCW 80.50.010, it is the policy of the state of Washington to recognize the pressing need for increased energy facilities, and to ensure, through available and reasonable methods, that the location and operation of all energy facilities and certain clean energy product manufacturing facilities produce minimal adverse effects on the welfare of the population and environment; including ecology of the land and its wildlife and the ecology of state waters and their aquatic life.	Section 1.3	Update the Purpose and Need
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Air Quality	The FEIS will include an assessment of the net effect of the proposed project and no project alternatives on GHG emissions and their relationship to Washington State GHG reduction goals.	4.3	Inclusion of assessment of the net effect of the proposed project on GHG emissions and their relationship to Washington State GHG reduction goals.
Anonymous User	1107788	Please see enclosed document.	Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
Anonymous User	1107790	I hope EFSEC pays attention to what happened at tonight's public hearing. 85% of the commenters are opposed to the HHH Wind Project - some outright opposed and some as it's currently configured. That 85% is in direct opposition to the propaganda on Scout has published stating 85-90% are in favor. Just one of many misrepresentations they've told. Of the 12 in favor, 4 of those were union members with an inherent bias. A number of the those speaking had obviously never read the DEIS - one of those being Dave Kobus. Had he done so, he would not have said the things he did. Anyway, I thank you for having this public hearing even though you were forced into doing it.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107907	The environmental, practical, safety and aesthetic impacts of this proposal in my area is a HOSTILE THREAT to everyone who lives here. It is yet another example of local communities being predated and exploited. No one wants this here unless they have direct pecuniary gain. STOP RUINING OUR COMMUNITIES!	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107919	I have read the executive summary of the draft EIS and think that it has thoroughly covered the impacts this project may have on the plants and animals of the project area. I think the mitigation steps that are outlined are reasonable and will ensure the protection of the land, native plants, and wildlife.	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1107924	Please add this Additional page with the Petition to Gov Inslee and EFSEC Against the Horse Heaven Hill Wind Farm Project. I uploaded 2668 signatures earlier and I am adding 9 more signatures to make 2677 signatures total.	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	The EIS assesses the potential impacts to wildlife, including birds, ferruginous hawk, migratory birds, and sandhill cane in Section 4.6. Impacts considered included habitat loss (direct and indirect), mortality (e.g. from collisions with turbines), barriers to movement, and habitat fragmentation. Section 4.6 also provides recommended mitigation measures intended to reduce potential impacts to wildlife.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Public Health and Safety	Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Earth Resources	See Section 4.2 of the Final EIS, which discusses potential impacts to earth resources from the Project.	4.2	n/a
Anonymous User	1107944	Dust Storm April 27, 2018 in Badger Canyon looking to the SW from spirit lane T8N R 28E S 21 This would be looking at the placement of turbines 1.5 miles back. The Badger Canyon drainage canyon from HHH would be behind the group of trees.	General- video or photo	Submitted video/photo received.	n/a	n/a
Anonymous User	1107947	Windmills produce low energy efficiency while representing 1. high visual pollution 2. high noise pollution 3. high light pollution 4. high kill rate of birds 5. high pollution when turbines are discarded and stacked up in less populated but scenic areas where they sit and rust away for years causing further environmental damage. We, the people, have our roots in this community and decry attempts at the exploitation of land by those outside of our community whose sole interest is financial gain. DEIS ISSUES Impacts to Wildlife, Birds, and Humans • Fugitive dust • Dust particle monitoring standards – PM size reduction to align with proposed new EPA standards • Insufficient number and inaccurately placed monitors • Monitoring data to be recorded, compiled, and analyzed by the applicant rather than unbiased 3rd parties • Wildlife and avian mortality monitoring • Wildlife and avian forage area reduction • Wildlife and avian breeding pattern disruption • Wildlife nesting areas (ferruginous hawk, burrowing owls, rattlesnakes, etc.) reduction • Wildlife corridor disruption • Blasting with accompanying noise, vibrations and dust • Low frequency noise • Low frequency vibrations • Shadow flicker • Nighttime flashing red lights • Recreation area loss (paragliding, hiking, birdwatching, ATV trails) • Future growth • Property devaluation • Visual aesthetics • Traffic disruption – long wait times during road straightening, widening, and paving • Traffic disruption - long wait times during component transport • Windshield damage • School bus safety • Hunting Impacts to Local Businesses • Tourism/wineries • Recreation area loss (paragliding, hiking, birdwatching, ATV trails) • Diversified agriculture • Traffic disruption – long wait times during road straightening, widening, and paving • Traffic disruption - long wait times during component transport Potential Impacts to Taxpayers • Property devaluation • Federal, state and county road damage from overweight vehicles • Increased fire potential & accompanying fire-fighting costs • Degraded component disposal • Decommissioning component disposal	Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			Air Quality	The EIS includes assessment of fugitive dust emission and mitigation measures to address them. Additional modeling of air quality impacts will be perfromed in the FEIS. An onsite AQMM is proposed to assure compliance with fugitive dust mitigation measures.	4.3	Sec 4.3 - additional modeling and discussion of results; additional mitigation measure to address AQMM
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS. A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Wildlife and Habitat	Wildlife and avian mortality are discussed in section 4.6.2 of the EIS. Mitigation measures Wild-1 and Wild-6 as well as several special status species mitigation measures were developed to monitor and manage wildlife mortality. Loss of wildlife habitat is described in Section 4.6.2.2 of the EIS. Loss is described as direct loss, which describes habitat permenently removed through operation due to citing of infrastructure (e.g. under a road), and indirect loss, which describes habitat that is not removed but may be reduced in function due to disturbance (e.g. noise). The EIS addresses the potential for the Project to deter wildlife from using habitat proximal to the project, including the potential for this habitat to be less functional for breeding. Potential behavioural disturbance is calculated as indirect habitat loss within a zone of influence. Mitigation Measure Hab-5 has been proposed to require the Applicant to measure and mitigate for Project specific indirect habitat impact. Wildlife corridors are discussed in the dEIS in Section 4.6.2.2. Mitigation measure Hab-1 has been recomended to require the Applicant to avoid corridors and, where avoidance is not possible, provide additional mitigation measures to reduce impacts to wildlife. The final siting and mitigation would be approved by EFSEC Mitigation measure Spec-5 requires the applicant to place turbines outside of core ferruginous hawk habitat. The definition of ferruginous hawk core habitat as 2 miles from a nest site was developed in consultation with experts from WDFW. In the event the Applicant requires placement of infrastructure within the 2 mile core habitat, the Applicant would be required to design additional mitigation and provide compensation.	4.6.2.2	Hab-5, Hab-1
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous User	1107959	I am writing to say that for quite a few reasons, I am not in favor of the Horse Heaven Wind Farm project proposed by Scout Clean Energy for Benton County, WA. So many of our ridgelines in Benton County are being developed for housing at a very rapid rate. The ones that remain provide unspoiled vistas and unparalleled beauty to our region. The public lands and existing roads draw local residents and tourists alike, to hike, photograph, draw and paint, and observe wildlife, and the hills provide a visual reminder and learning opportunity of the rich cultural, geological, and natural histories of the Horse Heaven Hills. The large tracts of land currently used for growing dryland wheat will likely be carved up by roads, resulting in precipitation- and wind-driven soil erosion. Large construction sites and extensive road-building in exposed areas with highly erodible soils can result in dust storms, reduced agricultural productivity through soil loss, and even landslides. Downslope temperature and wind could affect diverse agricultural areas near the project area, including orchards and vineyards where microclimates are critical to growing the high-quality fruit that this area is well-known for. Small growers and family farms could lose much-needed income. The project area is in close proximity to many rural homes and small family farms, where families have space to raise crops and animals and have sought solitude in a quiet living environment. Construction and operation of wind turbines would disrupt daily life for these residents, with whirling blades, vibrations, shadows, and flashing lights, and would likely reduce their quality of life and property values. We also can't overlook the scenic beauty, the wildflower displays, and the birds, animals, and plants that make up a beautiful, unique, and rapidly shrinking ecosystem. Additionally, the areas of high quality, largely undisturbed shrub steppe habitat and grasslands provide feeding, nesting, breeding, and hunting areas for many resident and migratory wildlife populations. There would be risks to the endangered ferruginous hawks, owls, eagles and other raptors, along with sandhill cranes and white pelicans, and songbirds who seek thermal currents and ridgetops to make their long-distance flights. Wind turbines do not appear to be very efficient and I have read that they are often shut down for frequent repairs. It would be better to place them near the areas where the power is needed. Our human environment in Benton County and surrounding areas have already been impacted by hydroelectric dams and a nuclear power plant, and there are solar facilities in the works. Surely there are better already-disturbed sites in the Pacific Northwest for wind turbines with more reliable wind and lower human and wildlife populations. Why not think bigger and address, plan, and implement energy conservation measures state-wide, in both small and large-scale ways? Energy-efficient lighting and machinery, upgrading insulation, requiring buildings to turn off excess lights out they are not occupied. Surely conservation and retro-fitting of existing structures is a lot greener than another giant wind farm in WA State. Plus, implementing widespread energy conservation measures would also provide longer-term jobs for the trades and manufacturing companies. How about an initiative with more incentives to place solar arrays on rooftops of homes, businesses, factories, shopping malls, parking lots, and even road surfaces to provide power for those buildings and also for net-metering? Siting solar farms in undeveloped areas is not an efficient use of space. Site them where infrastructure already exists. Thank you for the opportunity to comment. Mary Lilga Richland, WA	Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Earth Resources	See Section 4.2 of the Final EIS, which discusses potential impacts to earth resources from the Project.	4.2	n/a
			Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions.	3.8.1.2	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the EIS.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
Anonymous User	1107961	I oppose the Horse Heaven Energy project. I do not feel the wind turbines, solar panels and battery energy storage systems is in Kennewick and the Horse Heaven community best interest. Even the governor knows what an eye sore these are otherwise he'd be putting them all over the West side of the Cascade mountains and in the Columbia River Gorge from Hood River to the Mouth of the Columbia. Every concern I listened to at the public meeting was already discounted by the "independent" report. I have read Governor Inslee's letters of approval to go ahead on several projects on the East side of the Cascade Mountains and they all sound the same. The "independent" report siting the exact same thing with each concern people had for their communities. As he has promised at the "green climate" meetings he will not tolerate opposition to these projects.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1107984	oppose	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Anonymous User	1108001	Dust Pollution is a large concern not only as PM10 but especially PM2.5 and less with EPA putting out new requirements. This is a study "Airborne Dust and It's Impact on Hi-Vol Sampling Results at Richland, WA January, 1978 . This was from Phil Cook, Director of Air Pollution at Benton County he shared in 1988 with TRI-ACT as 1987-1992 were difficult times for HHH farmers keeping their topsoil from blowing.	Air Quality	Fugitive dust emissions are an acknowledged concern that has been evaluated in the EIS and will be further evaluated in the FEIS. It is noteworthy that the study provided is more than 40 years old. At that time, the particulate matter ambient air quality standard was measured as total suspended particulate (TSP). Developing health effects literature has increcsingly pointed to very fine particulate matter that can be respired into the deeper portions of the respiratory tract as the primary contributor to public health concerns. As a result , in 1987 the TSP standard was dropped. and replaced with 24-hr and annual average ambient PM10 standards. In 1997, 24-hr and annual average PM2.5 standards were promulgated. In 2006, the annual average PM10 standard was also dropped and 24-hr and annual average PM2.5 standards were lowered. In 2012, the primary annual average PM2.5 standard was further reduced. Although the 1978 study is an important historical document, the TSP emissions characterized in the 1978 study are no longer reflective of current measurement techniques or current ambient air quality standards.	4.3	n/a
David Watson	1108005	Have cumulative environmental impacts (e.g. to migratory birds) associated with this project in combination with those of other wind farm projects in the Columbia River gorge in Washington and Oregon been evaluated?	Cumulative Effects	Cumulative impacts are the combined result of incremental direct and indirect impacts on resources from a project or plan, past and present actions, and other reasonably foreseeable developments (RFDs). Table 5-1 provides a summary of existing projects and RFDs geographically and temporally relevant to the Proposed Action, their characteristics, and potential resources susceptible for being cumulatively impacted. Table 5-2 provides an analysis of impacts from the Project and cumulative impacts from the Proposed Action and past and present actions and RFDs.	Section 5.1, 5.2	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
David Watson	1108031	See updated map of wind farms in Washington and Oregon regarding my earlier comment on cumulative environmental impacts to migratory birds. Source is US Wind Turbine Database. See: https://eerscmap.usgs.gov/uswtdb/viewer/#7.33/45.741/-119.885/-10.2 Has there been any assessment of cumulative impacts to migratory birds from operation of wind farms? What do they conclude?	Wildlife and Habitat	The CEA, published after the DEIS, will be reviewed and incorporated into the FEIS.	4.6	n/a
Anonymous User	1108040	Attached are copies of the FACT SHEET from Tor-Citians Against Chemical Trespass giving background investigation numbers and other study reports on drift off HHH into Badger Canyon, Kiona, Red Mountain, Badger Mountain, Kennewick and Finley 1947-1993. After final WAC regulation went into effect the downwinders had 5 more years of residues from sulfonylurea herbicides that drifted off HHH to Badger Canyon, Finley, Kennewick, Kiona and Red Mountain. The last areas to get buffer zones was Finley and Badger Canyon two major hotspots.	Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. An evaluation of down winder effects resulting from the Project will be added to the FEIS.	4.13.2	Provide evaluation of "down winder" effects resulting from Project construction, operations, and decommissioning.
Anonymous User	1108065	NO MAP WAS AVAILABLE FOR SHOWIG TOWNSHIP RANGE AND SECTION NUMBERS. THIS IS A MAP PUT TOGETHER AFTER GOING THROUGH THE TURBINE SITES. THIS WAS NEEDED TO GET PERSPECTIVE ON LOCATION AND PROXIMITY TO RESIDENTIAL HOMES.	General- video or photo	Submitted video/photo received.	n/a	n/a
Anonymous User	1108082	The Burrrowing owl is under federal threatened species. This is native ground nesting bird living in wide open agricultural grounds and agricultural fields like shrub-steppe ground are located are an important food for concservation and habitat for these owls. It is a specie of concern in WA and vulnerable or imperiled due to habitat lost. Protected under migratory treaty act and considered a bird need in conservation that it needs it thrives on. The conservation of the habitat is imperative to its survival.The DEIS failed to identify the burrowing owl as a species; collisions of wind turbines is a source of mortality for the species of these birds. This is an endangered specie and needs to be identified and the DEIS needs to mitigate the safety and protection of the burrowing owl as well as the habitat for its survival.	Wildlife and Habitat	Burrowing owl are discussed under Section 4.6.2.4 of the EIS. Burrowing owl are state listed as a Candidate species and are not listed under the Federal Endangered Species Act although are considered a species of conservation concern. Burrowing owls generally stay close to the ground, foraging by swooping from low perches or walking. As such, they are less likely to collide with turbines than other bird species. However, they could be killed during project construction due to destruction of burrows and during operations from collision with project machinery, such as vehicles. These impacts are discussed in Section 4.6.2.4. of the EIS.	4.6.2.4	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1109614	I am writing to express my support for the Horse Heaven Clean Energy Center. However, I am really writing to express the support of my grandchildren and great grandchildren and their children. What would I tell my heirs if they said "How come your generation allowed the earth to warm to nearly unlivable temperature?" I am sorry that some people's views might change but I feel that is better than most of our vegetation dying off and our water resources drying up. Please complete this project as quickly as possible. Time is running out. Arlo Petersen 209 NE 136th St Vancouver, WA 98685	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109627	External Email Dear EFSEC, The DEIS is almost 1340 pages to have printed off. When home reviewing it the charts, visual simulations, Glare maps and many others were missing 35% from the DEIS report. Since the pages are not chronological without renumbering them for what page to print it means going to the library to use the computer and print specific pages at 65% which requires staff to help do that as it changes the printing. But the cost of redoing something that what not submitted correctly should be on Scout Energy and EFSEC for not checking it. When I first asked to view this at the library as my computer is broke; they had no knowledge of the DEIS report release and what it is. How sad to list these locations without giving them an email notice as there was no communication with them that the public will want to view this. They forwarded on the information to the other mid-Columbia libraries. The size and time for printing this off is enormous and expensive. Very few people may have time to sit in the library for weeks to read the report and comprehend such a massive report in 30 days or even 45 days. The majority of the public do not know because on article was in the paper just before Christmas when many residents have been out with holidays and family. I request at least 90 days to view and interpret this humongous document and time to find technical people to help interpret what the average citizen can not understand. The communities need to have more time to educate the public as 90% of 308,000 residents in Tri-Cities have No awareness to this project that will impact everyone. Due to no local public hearings with Benton County Planning and Benton County Commissioners we have missed that open hearing for people to learn about the size and impact of this wind farm on HHH. As a resident in Badger Canyon and knowing the canyon drainage fall of 700' off the ridge to us and Tri-Cities the sound and vibration noise will echo into our community which after time is documented on health problems from sleep disorders, lack of sleep, irritability, loss of patience, anger and frustration when family and children's health is impacted, as well as animals and pets that are even more sensitive to noise. Nothing is mentioned on the rising temperatures leaving the wind farm perimeter and the timing of those rising temperatures, changes in weather patterns and increased turbulent winds impacting the most expensive diversified agricultural crops in the state including many types of orchards and the wine industry directly below the 27 mile ridge line. These increased turbulence and increased changes in rising temperature can impact not only the noise downwind but temperature increases will impact the local power grid. Also the site of the visual in Badger Canyon is in the wrong location. It is about 4 miles off. Can they correct it, please?	General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). In accordance with WAC 197-11-455, "the draft EIS shall be issued by the responsible official and sent to any person requesting a copy of the EIS from the lead agency (fee may be charged for DEIS, see WAC 197-11-504)". On December 16, 2022, EFSEC notified the public of issuance of Draft EIS. The Draft EIS was available for public review on EFSEC website and physical copies were sent to local public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. Copies of the Draft EIS along with the Horse Heaven Wind Farm Project Application for Site Certification, (EFSEC Application/Docket No. EF-210011) were available for public review at 8 local libraries on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, as stated above, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies.	n/a	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Land and Shoreline Use	The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. Table 3.8-1A shows an analysis of the Project's consistency with the Benton County Comprehensive Plan's relevant goals and policies. For aspects of the Project's design that are not in alignment with the Benton County Comprehensive Plan, EFSEC would review discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant.	4.8.2, Appendix 3.8-1	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Noise and Vibration	Noise and vibration impacts are addressed in Seciton 4.11 of the EIS. Neither noise nor vibration are expected to cause impacts detrimental to human health.	4.11	n/a
joan.owens	1109630	External Email Being green and mandating unproven ways to be supposedly "green" are two different things. I am green and was taught caring for our earth through WSU environmental science and engineering as well as my Native American grandmother. The proposed windmills do not pay for themselves ever over their lifetime. The companies are given money by the government to subsidize the efforts. So of course the companies want to create and operate them. The massive machines take a lot of petroleum oil to operate, the massive blades are mixed materials; therefore, they cannot be recycled, and they require and abundant amount of land, which in this case disturbs the precious minimally remaining shrub steppe. The winds are high in the spring and fall. The wind produced energy takes priority with the energy companies per requirements so the energy production by the dams gets wasted in the spring. In order to not have conflicting energy use, windmills should not be located near dams. This proposed area has an abundance of dams and nuclear power and is self sufficient on power needs. The creation of solar panels has a huge toxic effluent (creates a lot of toxic materials such as toxic metals that pollute the earth). Many states classify solar panels as hazardous waste; therefore, they are not recycled. Both proposed "green" energy producers are not fully developed and should not take up the massive amounts of land in their beta form. It just isn't good stewardship forcing this down the throats of the locals who do not want this. To exclude the local authorities from the decision making process is undemocratic. For the proposed land of this ungreen project, it is in a peninsula area in Benton County that has three major rivers that merge. There are massive amounts of wildlife in this area. The mighty Columbia River is in the center of it all. The birds move between Oregon and Washington over this peninsula going between the wetlands up the Yakima River to the bird refuges along the Snake and Columbia Rivers. They fly daily over the Horse Heaven Hills peninsula area to obtain their grains and head back and forth to water. Thousands and thousands and thousands of snow geese, Canadian geese, ducks, native birds, Sandhill Cranes, for example, also our National bird the Bald Eagle, and even endangered birds call this area home at some point during the year. I enjoy listening and watching these birds fly over my home in the Horse Heaven Hills but it kills me inside knowing they all could be chopped up into wasted bird burger by the proposed ungreen energy machines. The Yakama Indian Nation has worked with the Washington Department of Fish and Wildlife to reintroduce pronghorn sheep/antelope back into this area. They are beautiful roaming through the Horse Heaven Hills. These large ungreen farms will impact all of the wildlife and their mating routines. Why are dams evil regarding salmon and windmills thought of as not evil regarding birds, bees, wildlife, human health and safety, etc.? I am so confused by this whole push for ungreen energy. It is like an electrical car. You plug it in but where does the energy come from? It just doesn't sit in an outlet the energy was created somewhere. Having a bunch of electrical cars that the energy is produced from a coal plant doesn't gain anything except maybe a net loss of energy from the transmission reductions. Small modular nuclear reactors are a much more green energy creator. They take up a very small amount of land, while the proposed ungreen energy producers require massive amounts of land. We have a huge amount of land in this same area called the Hanford Nuclear Reservation that we dedicated to nuclear operations so the land is perfect for continued nuclear use. I am a third generation Hanford scientist and I think that is truly green and wise choice for the earth. For nothing can compare to the amount of energy created by a nuclear reaction. It is reliable energy- not waiting for the wind to blow or the sun to shine. I do not support the massive destruction of the shrub steppe flora and fauna for these ungreen and unproven technologies that will destroy and impact our precious wildlife, human's quality of life and health and safety, for example. I have worked on Environmental Impact Statements most of my life, including Yucca Mountain, and clearly understand the evaluation process for proposed actions. Our area has sacrificed to the nation with the creation of the Hanford Nuclear Reservation and the creation of these ungreen environmental destructors would be a slap in the face to our historic area and our earth. Christina Caprio, NEPA Environmental Scientist Sent from my iPhone	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Wildlife and Habitat	The EIS assesses the potential project related impacts on wildlife and habitat in Section 4.6 including the potential impacts on pronghorn antelope and birds, including bird mortality from collisions.	4.6	n/a
			Land and Shoreline Use	The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. This includes voluntary applicants such as the proposed facility. Project review is conducted under the requirements of Revised Code of Washington (RCW) 80.50 and associated regulations. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout to choose to apply for site certification through EFSEC (RCW 80.50.060 (2)).	1.2.3	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
joan.owens	1109636	Hello- I was wondering what the situation is with the wind facilities around Ellensburg (in Kittitas County). You granted an expedited approval because the solar company's said they had deadlines that they had to met in contracts to sell the power … and now all these years later, I think the one on Tjossem Road is the only one that is actually up and going. Also, maybe I'm forgetting, but I had thought that they were supposed to add plantings and screen the chain link fence they put around the facility. I thought that was part of the company's pitch to keep the industrial look of the facility toned down since the State and County have a policy that projects need to preserve the 'rural character' of the land. Please let me know what you can about these questions - thanks! Susan	General - Question for EFSEC	During the pubic comment period EFSEC accepted comments and questions related to Horse Heaven project. Information on visual aspects and vegetation can be found in the respective chapters of the Draft EIS.	n/a	n/a
joan.owens	1109644	External Email Please see video documenting bird population in the Horse Heaven Hills. These are thousands of snow geese in the sky. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109649	Download Attachment Available until Feb 3, 2023 Attached is a video showing tons of geese scattered throughout the entire 180 degrees of the sky of the HHH area - geese leaving and coming to the HHH area and to the Columbia River/Yakima River. Zoom in to see the enormous numbers. Christina Caprio NEPA Environmental Scientist	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
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joan.owens	1109651	Download Attachment Available until Feb 3, 2023 Geese flying to HHH. Christina Caprio NEPA Environmental Scientist	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109658	Download Attachment Available until Feb 3, 2023 Tons of snow geese flying to HHH. Zoom in to see the amounts scattered across the sky! Christina Caprio NEPA Environmental Scientist https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAfkKS8bGJ2CFvoqj2fXBwsbYWZLtAd9f4ETrilhUK4S2cz_VVciGGTq-%252F%2524%257Bf%257D%253Fo%253DAlkUvP-XwVZRw7CqJ-NdiysGtWwhFzZnBSrWjJk9poOa%2526v%253D1%2526x%253D3%2526a%253DCAoggJT65yUd9C9Q0f6FSeGxoc9xVF5x9knbKI-i6rw9XGYSdhCFtfXt1zAYhcXwweEwIgEAKgkC6AMA_351Yj5SBNhZku1aBIYZOr5qJVJI7O_KAcVl6h9y6g7_KSVNMoT2-wp-HbipT1AVd2Vjfzu4dGtyJRMgJKM9gN6FKliTdIIkE8HbbcDXQelRU8F_xaRd1LmDywIcj8I%2526e%253D1675443839%2526fl%253D%2526r%253D17E117F7-4E84-491B-B144-BF60A91E1F25-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DjHbTRtsdnI5ysHoyvq1BIjaFuX4%26uk%3D0gmDGo7_Q7NWDoLsJlnkug%26fl%3DIMG_0776.MOV%26sz%3D1430877866amp;amp;data=05%7C01%7Cefsec%40efsec.wa.gov%7Cacf845a864634fe8532808daee75adf0%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638084487926956403%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C2000%7C%7C%7C&sdata=i378A1k2Id5cnGUniO7z5cEO2Li2aFpDN4Z2gTg3QDc%3D&reserved=0	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109662	External Email Download Attachment Available until Feb 3, 2023 Geese flying to HHH. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAWuc84VGdPRRZ_6mPNe1I7KsY_P4AS8Mve4C71nKiauh4MxEJEzWGcey%252F%2524%257Bf%257D%253Fo%253DAsfiQbWYXmuqyGl_UFQuwhCCDEQphObS_hpop7iqCXqT%2526v%253D1%2526x%253D3%2526a%253DCAog00X5tNyeeqL2DP7IPY3EW0BVB20GyOQxS2UfsozNs6wSdhCirJXv1zAYoryQw-EwIgEAKgkC6AMA_yhnGthSBKxj8_haBNYZx7JqJfvsBRivO692S18pXY991SB8r7I5dQMTCAJaWIrm4IQQydE3FqhyJXMRK_peQjrghJl0Laubaw08wzZdv0O34li-aUQuT_AEKY-F5RM%2526e%253D1675446459%2526fl%253D%2526r%253D1DF243AD-2D53-4923-B236-FDFE448BF5C7-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DLzhXI-VsS802I7aAWFq2ADM3dUk%26uk%3Dd8CxqE6khSuuu6JpXACg9Q%26fl%3DIMG_0771.MOV%26sz%3D66722053&data=05%7C01%7Cefsec%40efsec.wa.gov%7C7d94f7df95054cba2e9608daee7bc91b%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638084514091415082%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C2000%7C%7C%7C&sdata=A37v4cHkOfgpn%2BcAC115dCP9Ir8hyh0OGKBNC5FKc0k%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109663	External Email Download Attachment Available until Feb 3, 2023 Geese flying to HHH. This is a all day event. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAeTq_-6Kx60u-P8obMlm8q7JjNyKAUd8P-y1kXzxG5G-v3GusPp_ATKf%252F%2524%257Bf%257D%253Fo%253DAnmaZ2vXtJdQIKPmudQULGnRWQq6l__-g8dDuU3MsU0F%2526v%253D1%2526x%253D3%2526a%253DCAogxEdYtot8JxmaGxShc5rtIFM8VVBW10X3bjShY2EbMRgSdhDN3pjv1zAYze6Tw-EwIgEAKgkC6AMA_2mPzPtSBMmM3lpaBH8BMp9qJV7yo1BUyINX3rwDGbxlcD8oGU1SopGupH6NHHIU--RqLDM-u5NyJdeLq0T735cHazA2AxYYbc0twzpyh0yIfVzNaoETnBxwYR3yOlU%2526e%253D1675446515%2526fl%253D%2526r%253D92B63AC8-3247-48BE-A714-D0813C162F14-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DNvYvtbW1eM152WxwUHdZ020z2zg%26uk%3Dx1zNr67DNWKfHPqM49s2Gg%26fl%3DIMG_5238.MOV%26sz%3D56617544&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cfc5d17959dae4a2dfa6c08daee7be8d1%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638084514378176201%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C2000%7C%7C%7C&sdata=jw%2BSDtesPyVBt01h6RrnUP6B4cnOKBViYS6UnAQ5pE%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109666	External Email Download Attachment Available until Feb 3, 2023 Geese flying to HHH. Zoom in to see an ENORMOUS amount of geese flying to and from the HHH area to the Columbia and Yakima Rivers. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAa6guMLbQBHni89Wpi3VEy7K7shHAV-3ssvGykjjKZ1adAsPD6Md001C%252F%2524%257Bf%257D%253Fo%253DAhKbSiQQoTfLvUE9-uqMYJV5G5z4-t5nCew0HVrTg9YZ%2526v%253D1%2526x%253D3%2526a%253DCAogqYqtySc8y3Ka2HvHxWzYwjwSeis3J86Sgi5ZQ50SplgSdhD3k-Dv1zAY96Pbw-EwIgEAKgkC6AMA_xTJZ91SBMruyEdaBB3TTUJqJQuMtajSj3DdM4zcwEELHRh6BZ19LD9dIGOkOXokEP9OYB-Q2e5yJVEEijCLTlAmu5cPdsRhoBOPbl0aVl7t5THKryLqnCBwcho0z4M%2526e%253D1675447685%2526fl%253D%2526r%253D6FCB95CD-6D94-4136-8214-E536CD4C9009-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253Dh6w1riyX3TspZKb9uUXGdgXbyA%26uk%3Di5rOoqF37YYGdLB1v8Zg%26fl%3DIMG_0775.MOV%26sz%3D139369396&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cd2914e049bff418ea12908daee7ea256%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638084526494154566%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C2000%7C%7C%7C&sdata=%2Bc%2FyonblbV4tCw0yNiDGqsXqmPgucW0RtaupSw5lrlyY%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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joan.owens	1109669	External Email Hawk in HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109679	External Email Chukar in the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109681	External Email Download Attachment Available until Feb 3, 2023 Hawks flying and hunting together in the HHH. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAdV_GFDfxy5dkeoahmFkN1pzSqFLAePEFFn-qaRyi7J_ng2gFkl_qdoD%252F%2524%257Bf%257D%253Fo%253DAn0q29Z7p6FwsQsTnVQOhObcGxvqlDV4fGzBd0yvnpvM%2526v%253D1%2526x%253D3%2526a%253DCAogKOF0UO8lhPZ9BkTbWz6sjAZFqeH_ykYDw2ZEbaiFHvkSdhCW44vw1zAYlvOGxOEwIgEAKgkC6AMA_w_73YFSBHNKoUtaBH-p2gNqJZRSoPHq5kpk_SmjN_57BLxz5GlS6KJQF9NvoG9jFDz_r_Rzc2pyJeJ836PdNY8t6TebwHuSSV_9qi8dI2SwC0T6sYELfRb2ZWUn2AM%2526e%253D1675448400%2526ff%253D%2526fi%253D2FCC896D-738C-4525-82F1-7A4C34416B22-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D0tW6PQMOLV5SEgs36xByU_yanzY%26uk%3DHMtciz1fL4X0g8AlcQmugw%26f%3DIMG_9829.MOV%26sz%3D25631608&data=05%7C01%7Cefsec%40efsec.wa.gov%7C1dc92df40bcc48863a0308daee804c3a%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638084533260380584%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C2000%7C%7C%7C&sdata=IvCKRCTvvNj5S%2FqBPLgnzJdjZ%2FaeZq9N43%2B1AsA6xeQ%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109685	External Email Falcon flying in HHH. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109703	External Email I am deeply concerned about nuclear waste still shipping in to Hanford, in open, unlined pits, with leaking tanks not fixed, and a 5 year cleanup plan that looks good on paper, but will amount to nothing if not fully funded - with no accountability for progress - even as vested interests promote more nuclear energy and more radioactive waste. I am writing to express my support for the Horse Heaven Clean Energy Center and the role it will play in helping Washington achieve the ambitious decarbonization goals we set for ourselves with the passage of the Clean Energy Transformation Act (CETA) in 2019. I believe strongly in impact mitigation and value EFSEC's process, but know that Washington's ability to realize a carbon-free future will depend on permitting large-scale clean energy projects in a timely manner just like the Horse Heaven Clean Energy Center. This is a good project with appropriately identified mitigation measures, and backed by an experienced team that will produce up to 1,150 MW of renewable energy through a combination of wind, solar, and battery storage technology. With the passage of CETA, Washington established itself as a leader in the fight to curb global emissions. The state now has a responsibility to ensure the clean energy transition can be achieved in the necessary timeframe to facilitate fossil plant retirement, and in doing we can set an example for the rest of the nation to follow. Thank you for your consideration. ... peace in one breath ... ... one breath at a time	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109707	External Email Download Attachment Available until Feb 6, 2023 Really low geese flying to HHH. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAQPst98J_gAUOIdcMAtpKlX6dVAEAZfL9xQ7czfHOfkxDZsG_blKuaFd%252F%2524%257Bf%257D%253Fo%253DApl92dSDax7RaEmYG0zqF_FgTWTi8lcledbSFxLmx3VE%2526v%253D1%2526x%253D3%2526a%253DCAogVcIhpRlt6yU7j0duiJcGaM3YOP-jgXgFgQ_Py9J9TJASdhCQl-_p2DAYkKfqvelwIgEAKgkC6AMA_1SoN6JSBPp1UARaBEq5oV1qJYmDu8i8tyD16azEJf5yi-Pv-CtsRvkOpvLtGTUh7WxNYNjj6gJyJTwsCV9DJHX04fQYiBQbQY6hSCzlVPBs-nrpgfiv64eF94Vc6Pk%2526e%253D1675703784%2526fi%253D%2526fi%253D8685F065-9F72-4D29-9EA9-0DC323CD8CEC-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DxLyjVx3NPM6csqk_xwqCbl3N9z8%26uk%3DjLG2LVPjgwhck2JPJNsasA%26f%3DIMG_0844.MOV%26sz%3D13212980&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cb0516de4e04c47fbfaa908daf0d2e9dc%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638087087495800782%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=rlh5l0cO88cVJyXyLdeCU0URAoxdVVzvZjGazi961A%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1109713	External Email Download Attachment Available until Feb 6, 2023 More geese an hour later flying into the HHH at a low elevation. Can you imagine them all being chopped up? Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAV2Q2gFGRlb2iGq31SP0t-nnhhRSAVSwkJpiAdfMD8tqvCw9AX_ar75v%252F%2524%257Bf%257D%253Fo%253DAocwqgYCziL9BvHRvoDBN2N1gCBcudE-kl_LZ_T-oINq%2526v%253D1%2526x%253D3%2526a%253DCAogf8xyAWk1vTkSaxjnaAz6CoX1-kIjplHBuABAUsShq2ASdhCSho3s2DAYkpaIwOIwIgEAKgkC6AMA_w-7JlZSBOeG4FFJaBNqvvm9qJXbwqiSiXv8splc1er4bspdTGcldCH_ahPDffH6MvGpVkbEPAFyJV5ZfhOUBBLObVYitLfDhSSJXhQqE7ultgV2WGowSEf9rrbbKAs%2526e%253D1675708467%2526fl%253D%2526r%253DBA305F45-50C8-484C-A60A-ABB70901783A-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526kz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DDm85JCRCKNKpXQNDR8bjn1KfSks%26uk%3DWun1OePJfVoAV_wvTBPlyQ%26f%3DIMG_0847.MOV%26sz%3D27325123&data=05%7C01%7Cefsec%40efsec.wa.gov%7C2feb8a7d32b24560d13808daf0ddd12e%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638087133911312617%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=ohZw4rt%2BB8ypikZOJtBGPAyP1DRZXta5bGWermoLLjM%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109721	External Email Download Attachment Available until Feb 7, 2023 Large eagle flying over HHH. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAWNgjIl4J0Cnj8E7TiCNZ0Kl5ip_ARfx6r0CoFrYxVuQbGfud2baHNRk%252F%2524%257Bf%257D%253Fo%253DAkdKr8YlppG3B6JYIBnVKV1jzGGBJTkhU8lYugSty35s%2526v%253D1%2526x%253D3%2526a%253DCAog5GEex_mW7jsO7hcu70uoJqg27A9xsoRSKDeIJ1h5b-QSdhCOI_CU2TAYjqfr6OIwlgEAKgkC6AMA_zrb7aRSBKXmKn9aBNoc1GRqJZjCR16YcGBMgGT7HW_pdi-dyI70ddxaOuHc-TZI_UzMO6gtaoJyJfRM2EpGRv2ty_ZbxmgurPf9MXPY85A25MzSJ2JCx8NoVQfTx2o%2526e%253D1675793978%2526fl%253D%2526r%253DA6467268-B65D-4B1E-B7C5-5C06B9F6ACDA-7BCF6B348D33-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526kz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DJE5YE_f5I7qm2QZrW8Dyy1ThQFk%26uk%3D8RjnExrNONfIYa3FraoP8Q%26f%3DIMG_0857.MOV%26sz%3D23784325&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cd139e22628804a0eaa2008daf1a4e9d8%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638087988872654889%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=vtkVzczgFMxH7nSZITf%2B5gWW2LZJv%2F%2BL7iOD79rXDcY%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109724	External Email So many ducks in the HHH are we even have couples nesting in back yards and a Bald Eagle nesting in local trees. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1109733	External Email Pheasants in the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110852	External Email Pheasants in the HHH. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110854	External Email Download Attachment Available until Feb 8, 2023 Geese flying towards HHH. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FASkugmBIUHEx4HTTVkp2qWWQTK3XAeID_5uVK0ZpXFVAjIzh4ZBPhkEQ%252F%2524%257Bf%257D%253Fo%253DAiH6YZbjshoQVSCl8KnOy9jJuO3Kz3CKPRfOa1u4WoW%2526v%253D1%2526x%253D3%2526a%253DCAogNJs4EE9UxIQ0IDOzQQINI3Cs890BxMYxUmoyyRhPAwYSdhDYoOm72TAY2LDkj-MwIgEAKgkC6AMA_2HwWJlSBJBMrddaBE-GQRBqJZr9zSEGNwvIQHMopfNPgNEXG0BVqKANSQQ3X8kMp9Wy0LUlTwfyJX-jA-diKw8A_MvxY7OQ-1wX64pOiP4DwshCm1mYns1z8pS3WmM%2526e%253D1675875653%2526fl%253D%2526r%253DA2467268-B65D-4B1E-B7C5-5C06B9F6ACDA-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526kz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D9qlgLj_nsgzZyyl8FLMCfDyaAJo%26uk%3Durym0_HxXJKxBBlJ69PpuQ%26f%3DIMG_8264.MOV%26sz%3D77619281&data=05%7C01%7Cefsec%40efsec.wa.gov%7C5cdbf1a5fc8e4890a1fb08daf263133d%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088805794188514%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=M4zwLIeS8tPZT1zRhD0NZhFfkV9FjVmW2hoJ4SFNaPE%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1110856	External Email Download Attachment Available until Feb 8, 2023 Hawks hunting in the HHH. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252F%252FARbXRlE2XUIjrMPGf4dVEHtBwN-AT-jjZtHYBavl-NASs9dgoMjfbTE0%252F%2524%257Bf%257D%253Fo%253DAs41XgQXJXhtRF6fB1xgtk0o1XjWv2VWjegDdZYk2GEY%2526v%253D1%2526x%253D3%2526a%253DCAog9mPfqqSXfSpJMACnYFoWabTwWQmjq3tdh-IkUMhgJhcSdhDWpu272TAY1rboj-MwIgEAKgkC6AMA_y0qcgJSBO0HA35aBN9tMTRqJaIPHlqYgdBxEZq-J4spv-daUfI6GAS2y9JZGrRX9cuxg5vc9NZyJdegPqHpd97DYvHJuUYDVbauak_VJxy1_RJ9Bie8nYU_4LoMBrM%2526e%253D1675875720%2526fl%253D%2526r%253DDA9AB93A-D664-4AEA-BB71-228B68E7407A-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DIaJYVT3odrHPeAcWpbinnzJvqGE%26uk%3Db5uJU0mU_dLzUuIPN-lsnw%26fi%3DIMG_3261.MOV%26sz%3D27568707&data=05%7C01%7Cefsec%40efsec.wa.gov%7C1471b6aa2f1849af432708daf2633a7d%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088808064401303 0%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=C0zJaVOaJB35WuAuknqrXio%2FeaT%2F93mkiBe7nt7Co1o%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110860	External Email Cottontail and chukar coexisting in HHH. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110865	External Email Cotton tail rabbit in HHH. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110868	External Email Ducks in HHH. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110870	External Email Beautiful shrub-steppe rolling Horse Heaven Hills where the wildlife and bird flyzone is plentiful. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
joan.owens	1110871	External Email Download Attachment Available until Feb 8, 2023 Mallards in HHH in winter. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252F%252FaaLmW8rDQCFdZ8xq37w2GOzObdwAU58NRyl6wCMpkPgzKjDj1GUiSHP%252F%2524%257Bf%257D%253Fo%253DAkvIN8PJz0QTfcmuHyLKQEfIQMIoenqPim0kvJWrqXbw%2526v%253D1%2526x%253D3%2526a%253DCAogFlhQb1IETEOBwWWRrWOcNv561VFDo7U6sqCa4nxXGUSdhDH9_272TAYx4f5j-MwIgEAKgkC6AMA_3PvjGBSBLM5i3BaBJSJlc9qJekbU-LCsp2nu5me_2JxaG-QBFSBxKlhZUD29VBOf8B8_-uesF1yJeuOdz2q8eGkkNtdVVxGOf_8QhsE46Tbxluak0bn6cYzTNK9K6k%2526e%253D1675875992%2526fl%253D%2526r%253D2757E0BE-97C0-42CE-A69D-916E46CE2A5E-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DxYP7yBrB0C4VRETwQOdN7emxL9c%26uk%3DOg4CaIziARDz0lcDZnbMXw%26fi%3DIMG_3135.MOV%26sz%3D42550505&data=05%7C01%7Cefsec%40efsec.wa.gov%7C06f865247aec46a044e108daf263dcfb%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088809303062544%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=pwO6Qd4QE%2Fm%2F3CADUmUEj7hqvp%2F31jOZrI3v4x%2FXvoQ%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110873	External Email Download Attachment Available until Feb 8, 2023 Example of a solar farm near Las Vegas, NV. Can you imagine the waste stream to create and dispose these structures? Can you imagine the heat increase in the area? Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAf54tqY9mREZv6pDRFuY4obp3bQcAfM1PD-VAXSjwJxaPhj170x0s_eN%252F%2524%257Bf%257D%253Fo%253DAv4NxFsBmb4cfN432Gt0bQMirUc3pWfI4MYvNvUKrCq%2526v%253D1%2526x%253D3%2526a%253DCAogz-CO0vvdM5QkP_KaZsY5uHWr73_NEmYqRrmd-5NzqHcSdhC13pO82TAYte6OkOMwIgEAKgkC6AMA_zlyfQhSBOndtBxaBHSz941qJU0YUzEbpgKXFF1fogV4xqkNJp81KVl-yoU636ZoK-T5N1VHkBdyJR8RxujPOxTedQlPa0akCnwv8yM52pfaw1VzZiTDnXjUr5my5es%2526e%253D1675876349%2526fl%253D%2526r%253D8E6C1604-A191-44A9-8FCE-2A6B1A801397-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DmXbl7VDnkHYQSZAn8xtV4NuJMZg%26uk%3DGwpCwL0iUzfKwo31z-WiJg%26fi%3DIMG_2843.MOV%26sz%3D8161281&data=05%7C01%7Cefsec%40efsec.wa.gov%7C7cfcc8a6c32c6643f6407b08daf264b1e3%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088812871617902%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=Ptn24RcadzbmsS8%2BY2sGB6Is6OTj1ozclaOHwMYlsU%3D&reserved=0 0 bytes Sent from my iPhone	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1110876	External Email Example of how much room windmills take on land. These windmills are very small compared to the proposed size of HHH windmills. Remember the windmills take a lot of petroleum to operate, kill and impact wildlife, pollinators such as bees, bugs, and bats, impacts farming and living areas, impact human health and safety, the massive windmill blades can not be recycled, and most states don't recycle solar panels since they are classified as hazardous waste, and the windmills never, ever pay for themselves- the government covers the costs. Not a smart earth or business decision. Nuclear energy is dependable - not waiting for the wind to blow or the sun to shine. We have a massive nuclear reservation in the same area with Hanford clean up and a nuclear power plant as well. Energy created from nuclear cannot compare to anything. Small modular reactor is where the future should be focused on. The footprint of the earth impacted is so small as well. Christina Caprio NEPA EIS Environmental Scientist Third Generation Hanford Nuclear Reservation Scientist Sent from my iPhone	Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Land and Shoreline Use	The Project would be microsited to avoid and minimize disruption to existing cropland and would provide new revenue to agricultural landowners via lease agreements (Horse Heaven Wind Farm, LLC 2021). Of the acreage permanently impacted by the Project, approximately 6,866 acres are agricultural lands. Of the agricultural lands permanently impacted by the Project, approximately 99 percent are being managed for dryland wheat. Table 3.8-1A shows an analysis of the Project's consistency with the Benton County Comprehensive Plan's relevant goals and policies. For aspects of the Project's design that are not in alignment with the Benton County Comprehensive Plan, EFSEC would review discrepancies through an adjudicative process intended to resolve disputes between the local government and the Applicant.	4.8.2, Appendix 3.8-1	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
joan.owens	1110878	External Email Pronghorn Antelope roaming the HHH. These have been r established by the Yakama Indian Nation with the Fish & Wildlife. The proposed windmill and solar farms will impact their roaming and mating rituals. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110880	External Email Download Attachment Available until Feb 8, 2023 Sandhills cranes flying over the HHH. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAfBiiLfVbI7HBjgK_9vdEuRN28k3ATHYVZUO9I2dnjbfDiBIoU033kRV%252F%2524%257Bf%257D%253Fo%253DArl55nCClMSBweY8s1lxNihE1GEh7_oiGZcykTRCdPko%2526v%253D1%2526x%253D3%2526a%253DCAog1lomzrE2NndCfC4B-dY6f-LjdncLvJ_nZreHDnmeDwYSdhCfncC82TAYn627kOMwlgEAKgkC6AMA_2uDHABSBE3byTdaBDfeRFVqJeYO2mvPSmDd7zSuFc8cqJrXmsf1ENE8tHukqMmZS-26lqJnKzRyJWaXNUWDoahT4KV4vS4wWDX_0wU_kUqn8WDMjRT-QAfNR8aCXtY%2526e%253D1675877078%2526fl%253D%2526r%253D948BA724-E629-4F93-A627-5FF7094EAFF5-1%2526k%253D%2524%257Buk%257D%2526kc%253Dcom.apple.largeattachment%2526kz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DUCGJLjPia234PGlW4ItiJXwyM8%26uk%3DtmlVv7VH5gP6iKPmCaUYSA%26f%3DIMG_2008.MOV%26sz%3D78559452&data=05%7C01%7Cefsec%40efsec.wa.gov%7C02958eb52db4472caa7a08daf2666489%7C11d0e217264e400a8ba057dcc127d2d%7C0%7C0%7C638088820038166442%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=MqgJGvwPNf44p3rTQLi1RtDGq0QfnQhZmwZwbWyKp3A%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110912	External Email Pronghorn Antelope roaming the HHH. These were just reintroduced by the Yakama Indian Nation. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110922	External Email Hawks hunting together over the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110924	External Email Download Attachment Available until Feb 8, 2023 Sandhill cranes flying over the HHH. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAfEh9s1mIBuKjX8xTwDW0uBFBsUlARQsiFdwGGR_ioO03xxtWO7hQDs_%252F%2524%257Bf%257D%253Fo%253DAtBsnmUVz8pG2sVrFpgVPIMsWnJpGJEgqEga-DIfSIfJ%2526v%253D1%2526x%253D3%2526a%253DCAogi1Bg1SevA8H8wxj68K8jJGOvhlyVgksCIZsNsls7DKgSdhCQyMy82TAYkNjHkOMwlgEAKgkC6AMA_2qwLwBSBEUGxSVaBOFAOz9qJXM8EQ7_zES8OUFsaqvXoJjZNzpxc7-S7e6JV-LmLdsTlqDYdxxyJYQHxhTlAXwsFcsQewMcdzw0fD7-g92z5y0ZkiMi1JP4MESKH2I%2526e%253D1675877280%2526fl%253D%2526r%253D157DB97C-CD43-44F9-B32A-529F84FDEF63-1%2526k%253D%2524%257Buk%257D%2526kc%253Dcom.apple.largeattachment%2526kz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D5NIr8mqdYVxxgdfLtCtOI3fRH8%26uk%3DrAjFCsGn3e4UnwGdDt6IQ%26f%3DIMG_8188.MOV%26sz%3D22801253&data=05%7C01%7Cefsec%40efsec.wa.gov%7C270c70852461466ecf3708daf266dd19%7C11d0e217264e400a8ba057dcc127d2d%7C0%7C0%7C638088821899420837%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=LatQ2NsIWJm5gq4qvve6bTbrCrIvTu0Px7otenuhlr0%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1110926	External Email View of two hawks hunting together over the HHH. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110932	External Email Hawks hunting together over the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110937	External Email Beautiful HHH with the shrub steppe hills and beautiful views for the Tri-Cities, Washington to look at. Priceless. Sent from my iPhone	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
joan.owens	1110941	External Email Owls calling in the night at the HHH. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110946	External Email Owls calling in the HHH. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110949	External Email Hawk flying in HHH. See mid picture to left of gray home. Bird is flying and hunting. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110954	External Email Hawk eating a meal in the HHH. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110960	External Email Cottontail rabbit and birds in trees in HHH winter. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110964	External Email Pheasant and cottontail rabbit in HHH. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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From Granicus Engagement Tool			Public Comment Responses			
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joan.owens	1110966	External Email Download Attachment Available until Feb 8, 2023 Hawk video eating a meal. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FATgz7k_22b8hmYkN6V3U4U02GMyYAYbney3-R2U_6OOw3olFtU0B_7nO%252F%2524%257Bf%257D%253Fo%253DAp_EiZDPPT37xoJY5uGCr1M9zskR6xxYnn60Jk78Bm_B%2526v%253D1%2526x%253D3%2526a%253DCAogZ4Y8VWlHZ1jRfaXFwQvi4F9rLbp5IINB33y_tecYRwSdhD4ifi82TAY-JnzkOMwlgEAKgkC6AMA_1daVRNSBDYYzJhaBAH_uc5qJdxTqKs8H0LjQvZIxg6ldVtWQiLD0-gxMGJmAghWt5rIJA0mC_pyJRPVUbo-eWQ1R5lhHTvX5t9ZPDQiv0yzA3TM8VaE9XzknJHVTZo%2526e%253D1675877993%2526fl%253D%2526r%253D7E3A1E57-6F42-42DC-9B7D-BA6C557C4B26-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DVYJGn62QncuQYS-Vn24b44Ryfex%26uk%3DjpbWamp_5DySSOH7RjTlfQ%26f%3DIMG_0631.MOV%26sz%3D25454475&data=05%7C01%7Cefsec%40efsec.wa.gov%7C38a83c147e5041e14c5e08daf26885f3%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088830676197133%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=OIHHxOTZgRBevvd%2FczzKPOA7eiwxSmcSGg2UUrPWRto%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110977	External Email Hawk hunting in HHH. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110981	External Email Hawk hunting in HHH. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110983	External Email Download Attachment Available until Feb 8, 2023 Hawk hunting in HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAV2ZHXDGJ-Qxn9am9XTxyODTxBDpAWXloL7EG6S8TE2eN14ok2rXyvan%252F%2524%257Bf%257D%253Fo%253DAsMCOZwcz30V5eshQg6IyDk0maJWVu0SxnsegFj6qP26%2526v%253D1%2526x%253D3%2526a%253DCAogkKTRZXFLr-WPhDzSa-cz1Ilq-2ZkQdQcocZlukzi_QkSdhCH1IW92TAYh-SAkeMwlgEAKgkC6AMA_wfsDv5SBNPEEOlaBNfK9qdqJX-kEOw3XSlCyaW7jAAEv1_WrDcD898oHm5LhRPDGbhV5FkB41RyJV4iEs0KXpdntxrCs1EU8G8TikCcfUKhDpeKNsts7k_Nj2Qau0c%2526e%253D1675878216%2526fl%253D%2526r%253D274B8A41-5C28-40B6-AA72-9045B1BC1B5E-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DjG9sk79kA5V66Frh8nb6ONk_4SM%26uk%3Dg7fnAchnC6Eb7h5Walyq4Q%26f%3DIMG_0567.MOV%26sz%3D26869816&data=05%7C01%7Cefsec%40efsec.wa.gov%7C228d980738004d2fcefbe08daf2690ad6%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088831445299981%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=dVOtiOln91Af2WE%2BRv7NRmNyumY6jPUUxFwwI2pTJdM%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110988	External Email Hawk hunting in hhh. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1110997	External Email Geese flying over the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111059	External Email Geese over HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111061	External Email Geese flying over the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111062	External Email Download Attachment Available until Feb 8, 2023 Hawk hunting in HHH. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAbFW595wuJ9ocwUHOyPRbtbkv2QdAeNKU6RHiaT2Oi-D4yoMArseJUYW%252F%2524%257Bf%257D%253Fo%253DAiECrHDA6gZC9idg4bRc-GdTkc-BRQqmJWJZygPvD3e4%2526v%253D1%2526x%253D3%2526a%253DCAogguvl2o6sTaRt4AfeBq1KlcytcXBczWcNV4amwfhFYr4SdhDQhZS92TAY0JWPkeMwIgEAKgkC6AMA_yJPdOxSBOS_ZB1aBB4lRhZqJXNqYPEXe2ZlltLC9SPMopWIzqg_6GL7ZNgvR-ftjvQvJlJ0RhdyJTdTcIgJ90emN84g0UQYWg2InqLNtFENCPfbBVBFsCyvVLjaDl8%2526e%253D1675878451%2526fl%253D%2526r%253DB0E42714-42CB-4407-A850-1BA5EB45FE10-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DqJ9YuzxU6jVSsKpgzrObOMYiwxZ0%26uk%3Dsigy_QH9_-Wh-gncgDlZVw%26f%3DIMG_0390.MOV%26sz%3D46706814&data=05%7C01%7Cefsec%40efsec.wa.gov%7C992db400f6ae40b63cf408daf26996c4%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088834032487274%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=JT1PCybOtTSFdG%2BgsrRWOZDuM9jnKH%2Fz6BdVLQT4jAU%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111063	External Email Download Attachment Available until Feb 8, 2023 Geese flying over the HHH. Christina Caprio Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAW4Ztd1O5Qu3OicIWyN0GJSlEfjbASjfpSaJy0Z3TvZ437tN243t1Zx3%252F%2524%257Bf%257D%253Fo%253DAhXrTy17El1GWHceUocx0uljP2RcXRRR7D8KVZX_T_Wh%2526v%253D1%2526x%253D3%2526a%253DCAogf5x1blZxvnzyIyoI-gLIvDY33yYvZ1zcShI357oAtUYSdhC5gaq92TAYuZGlkeMwIgEAKgkC6AMA_0wy6JxSBKUR-NtaBO3VnHdqJRFCDokong0E93Tc0odCYkZtvi7GVUmVPDxsSyyZKl9FtWQETNyJZZUwzsIDET5i1SLG8pPspLKpuaJjxDbHUl6ib7hea2suf-1Y4o%2526e%253D1675878811%2526fl%253D%2526r%253D581312A8-2B4A-4CBA-8D92-D83FA2B620C8-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DOBzgpKMyfIdjswRUImsev2v9Sxs%26uk%3DoOhVSoIQvhFRZOk6ayE-_Q%26f%3DIMG_9428.MOV%26sz%3D40336836&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cc878d66fca2640ccda1508daf26a6d6f%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088837525635711%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=I%2Ba43pfP0bDnL2kA6EgANunNqs2vtOfMgQpIAVKkYJY%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111068	External Email Sandhill Cranes flying over the HHH. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111074	External Email Download Attachment Available until Feb 8, 2023 Snow Geese flying low over the HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAQ7hCCI8UCOxDPeX4MQN5E2_-M_VAaKHBz_58bodMZMSy3v1Lm6tMEGZ%252F%2524%257Bf%257D%253Fo%253DAgqtAzLdl8MxiBCd45_1pym7dWCT2mg9t7m-lliv3x6O%2526v%253D1%2526x%253D3%2526a%253DCAogkbPGwQFmXR_500zJQpLJSwwSDCfqA-2ZNLu2P4MM8igSdhCX_a292TAYl42pkeMwIgEAKgkC6AMA_zYmzZJSBL_4z9VaBK0wQZlqJel9A16cWC6XYzme6XNIaj7nlDg-iksALtgMyswVNU3ladd316VyJcOZDQLHsOlV7gV7m2yASTNGel8iACUtiqPszhPJWI_IhCAm_5o%2526e%253D1675878876%2526fl%253D%2526r%253DA02BBC46-E806-41BB-9D66-AFFACFE236D3-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D-8VGKaC3Jt1l85SuodOBbB74LDc%26uk%3DfoI0i03agPBKuH_QNc1CcQ%26f%3DIMG_9427.MOV%26sz%3D35368490&data=05%7C01%7Cefsec%40efsec.wa.gov%7C221048432e564d500c2608daf26a9437%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088837989052048%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=%2Fz8HE09kny4Az%2Fcg%2FDOOlEo1SokC6jCmn8P0uCKrCr8%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111090	External Email Beautiful HHH hills without windmills. Priceless. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111094	External Email Sandhill cranes flying over the HHH. Christina Caprio Environmental Scientist Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111100	External Email Download Attachment Available until Feb 8, 2023 Snadhill Cranes flying over the HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAbyUPi3M4Tth9z5KNPwSX9E-ZSdjAXM75EoVOJNh4zhKPNDfJkmcqmbl%252F%2524%257Bf%257D%253Fo%253DAr_IGy_hJwTcvsyPnsHzEj0mk5r8RmjyQ3MFHl0M56iX%2526v%253D1%2526x%253D3%2526a%253DCAogHwJwseoKJ-kCpSQ1DxKeDRguXd6nGk1RTe1_TjSJ3ZoSdhCw-cW92TAYsInBkeMwIgEAKgkC6AMA_2s2x5VSBD5IJ2NaBJyqZshqJagPmfGev2ya8ls0b_kmO1JuV8AmPbaIsKtdQnHSWgUA8io6gp9yJWHiBcQ809xwmKzuqIc-HsPq-ulaNMn628S2UlpF06rFwsVtkjM%2526e%253D1675879269%2526fl%253D%2526r%253DC118EF28-4C91-492D-AEA0-5B9911FDB8FB-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DCpB7qSuXNm-UjaMcFkSlj8S-ZAo%26uk%3D_B0QTaj4aL45Va-LIY-00w%26fl%3DIMG_6920.MOV%26sz%3D61034830&data=05%7C01%7Cefsec%40efsec.wa.gov%7C544052cc025545a85fe008daf26b7e90%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088842086811004%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=As%2FwzPfU5Gdxa%2BfYZhbOMmZVWUKeeJzhjoqAa8NYhtg%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111101	External Email Download Attachment Available until Feb 8, 2023 Sandhill Cranes flying over the HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAevFpS5q-cdyIVtkGHYSIlyOCa65AZ_-TgKD_eGWHjFDLO8ucBXIB-Ij%252F%2524%257Bf%257D%253Fo%253DasFHz2pvAAIGbWw5L60c3eKznSikpylFb5ed27sYQ8p3%2526v%253D1%2526x%253D3%2526a%253DCAogMkTeqvyeuUVwHpX07Z2nH6TmAVj4tPTGZJjF_7krhBsSdhCHts292TAYh8blkeMwIgEAKgkC6AMA_0-gbW1SBl4JrrIaBMgH4iNqJTpymqwvN4JirMzMqo-9j3AyaW_ap3G7IJG3P8S9d3EDf-UssodyJUIct5V1q7VlGV6_-Lp3rPLGGvOLTHFq-Hs24LkSN3xR04VzWdQ%2526e%253D1675879392%2526fl%253D%2526r%253DCE13D3D6-11B5-4DDC-9A6E-4CB40B9AA115-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DEbEztSVqnXyerxl9cl6l1pfEkLs%26uk%3DE0hL32JkceTn8stvICksKQ%26fl%3DIMG_6905.MOV%26sz%3D41490283&data=05%7C01%7Cefsec%40efsec.wa.gov%7Ce3d55da6ba774c4ce3dfd08daf26bc745%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088843157747455%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=Fklp9YfjFEH6Mr%2FHJ1OvVGGvcG8ilbIzNRmpL%2FdQuG4%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111104	External Email Local birds being raised in the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111132	External Email Download Attachment Available until Feb 8, 2023 Chukar hanging in the HHH. Christina Caprio Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAXTCNNqp6Gp7Rdv6K-lpPGUUfZSCAaJ69cseoio2JUkMEX5hv8xRqyqw%252F%2524%257Bf%257D%253Fo%253DAvfa6D09VkJJ8xUWqbqwDXtHI53UvTgToxGxncKtLzut%2526v%253D1%2526x%253D3%2526a%253DCAogmTkNvc_7ZNsUJsoX-r2SO7LK8_1VrAE0j6kzHc1SZoUSdhDI3dS92TAYyO3PkeMwIgEAKgkC6AMA_ynNtYVSBBR9lIJaBFGrKrBqJR3hxg8mlDdAC3woZKr_a-iHX4pXszzUrSSlbMTY1_7loBLzVR9yJVYwjVKyTe4qt-eh0kv_9Oxyi2qk-VgUFuRL50yszYmPf8xqHoU%2526e%253D1675879511%2526fl%253D%2526r%253D77AF8490-C39B-4322-BEB1-62EC971EE320-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DWWeTWwuZ3KEQPoK7RBcmN9A5Nwc%26uk%3DL22yNyCWo6o5_wVthSzKCQ%26fl%3DIMG_6352.MOV%26sz%3D55405807&data=05%7C01%7Cefsec%40efsec.wa.gov%7C7190396ad2174ee2a80b08daf26c0e8f%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088844484785057%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=gxbsIFShMJMiz4NnFCmSzpnt9ap7aUF%2BF7f8GzPKLzw%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111137	External Email Download Attachment Available until Feb 8, 2023 Sandhill Cranes in HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAahH2GpHmHIveC76FZOmPiZpvuRRAfOgiJ77OiSiBOR-B1ph_gFKQpVb%252F%2524%257Bf%257D%253Fo%253DAjF-70KcZiKLUVxMCeqNRSATyEQfwEIUEJ2WEw_7CZKN%2526v%253D1%2526x%253D3%2526a%253DCAogaFAwVtAMe2pwp_Ty3_WrrcU9X9DuLXxgpmBQ2jnhJZ4SdhDdqNi92TAY3bjTkeMwIgEAKgkC6AMA_3gzEg9SBGm-5FFaBEpClVtqJZtivurM1H7Z8yAMpGSsn2McNok_8lU3BJDxNBEO790H1NKt6W1yJelpnazKN9uCoNTOZ48aApUJfQiq6FSljTKEQmSCV8A5Ue3bRXc%2526e%253D1675879570%2526fl%253D%2526r%253D67674192-9910-47B9-A4B9-80DE9B7603D1-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D-uyO-Qh1H7nyKCKkvFGTfBhAcH4%26uk%3D9Fins9ErMqa0fQTfaXht2g%26fl%3DIMG_4743.mov%26sz%3D36329972&data=05%7C01%7Cefsec%40efsec.wa.gov%7C8e6d8950e671445778c208daf26c316d%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088845220705645%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=yBapD7vzPoy11GbGHAL2pJbvuFTxo28n2SxTAUODnqE%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111139	External Email Download Attachment Available until Feb 8, 2023 Cottontail rabbit fun in the HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAfNhRrtWk94X_xFy3cJb_YiANTHbAQA_Sf2Tg59Z1Z7vxDkP2Xvc1cnC%252F%2524%257Bf%257D%253Fo%253DAv0JDPjAnG0zJMoakqJ0EIABB4nlMSK2socj_zLrt4P0%2526v%253D1%2526x%253D3%2526a%253DCAogAs0RY3pP5QHYZ57y-XMSKMNmOEb87Eb-586JSdyZ7vwSdhD7pd692TAY-7XZkeMwIgEAKgkC6AMA_xW55UVSBIA1MdtaBNzVycJqJSQMKOacNDO9H71KpYZjKVVCPjDK-b-D9dmONJXxQiJwGfnxl1RyJSMNCOA-2nOyraqqDLcIDjBCRQ0hOwTuvm9ndwFrGbGDO0JH0bs%2526e%253D1675879668%2526ff%253D%2526r%253D987B7D24-3BF0-487E-97AD-533C5E7C4B35-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D8O88iSRRpBnI7-gklsWp5MsIRUU%26uk%3DRxCZ7O3503K20aO5BMfPRg%26f%3DIMG_3548.MOV%26sz%3D25430314&data=05%7C01%7Cefsec%40efsec.wa.gov%7C809034543e84d04c4bb08daf26c6bf9%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088846055749884%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=%2BoYo%2BSoUsPBCBZwr0tpqW9a4DHlbdz0SOmLKzAkveE%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111142	External Email Sandhill cranes flying over the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111144	External Email Download Attachment Available until Feb 8, 2023 Sandhill cranes flying over the HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAab7t4fF2-YhaS-3qoq-MjP0Y7-jAVT4-RiVzvigldea8kOgupkUfsJy%252F%2524%257Bf%257D%253Fo%253DAuwPhQ32Qpr5b5r9aetmNhycF8wb_aUA9N6V7Vze2WJL%2526v%253D1%2526x%253D3%2526a%253DCAogHYkwkiR96C1dh6vld_AMK9L-bfOr8gX83qPenl6DBrYSdhCn8Oa92TAYp4DikeMwIgEAKgkC6AMA_zvV7YpSBPRjv6NaBBR-wnJqJWBYN2eEBPCTkNGMMBUAKP_rKhgG8alvhNQ7yzHgHgyBp0zToMVyJSmMoApyXX2-bKYHyRmQ0xICFzr5emC5GN3o7JVFJEOc46PrKjc%2526e%253D1675879809%2526ff%253D%2526r%253DF3162BAD-A844-4660-987A-1A5F176CF5E6-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253Diq3CmK22JvR_nBQDt4PTDGSK20%26uk%3Dz2EYJ2JSOQ1OtQbfypo1Ug%26f%3DIMG_1888.MOV%26sz%3D27819929&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cc137c4fab2694c9caa9308daf26cbfc7%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088847460354101%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=1bKO4fPKG%2FDaETFmc28ZD%2BFn3bKrMf3Kv6MxpSD8tA4%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111146	External Email Download Attachment Available until Feb 8, 2023 Sandhill cranes flying over the HHH. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAZyaV4cs37zqQgrx9shUd5dSfhSdAb3p6hevSlDXf7KB1bgY0di9DPzN%252F%2524%257Bf%257D%253Fo%253DAuuU-d2Nb7vPYO6_ZV2ehW7rtDzxD60h39OnK2pfOgZ5%2526v%253D1%2526x%253D3%2526a%253DCAogzLruKBsu0qam0SN6WwLqMQTM0gr3wtQHsGJ0Yr_VOjQSdhDzheq92TAY85XlkeMwIgEAKgkC6AMA_wjKcDhSBFJ-FJ1aBLDM_M1qJRpjS_5CDj9Bik2NCFHL8Mzgyqbx__j0uhZMIknfdmRdSpVwJ1lyJUrpk7m5y2knUWeGXQH0TD4nbJ3slouNzEmz3umlKwbIFw6KQDI%2526e%253D1675879860%2526ff%253D%2526r%253D7F532667-1B98-471E-BA00-1C2ACB1F727B-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D-RgGcbQX4cFdygGARoYK-OJ0f7k%26uk%3DXEdpClmy_0iHB15EkDnqPQ%26f%3DIMG_1887.MOV%26sz%3D34255511&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cc99ec0a076fc457b575708daf26cdec6%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088848021418797%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=mhusqv0%2FhTxejuFUx25nLHwYENEliaOPTqi5RfbyWcY%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111154	External Email Download Attachment Available until Feb 8, 2023 Geese flying over the HHH Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAdplnx3F9xWQf7Y09lyXrruUlQS1AdRd2W-l3nfDd5Lw92ysVRmUcZ8u%252F%2524%257Bf%257D%253Fo%253DAiRh7UQXXl_w5PxHD8UW1txjOHV786B32ow34QAyf5Ks%2526v%253D1%2526x%253D3%2526a%253DCAogZ8gLUyT50gzBxj-wwDO7sQOEL9evUI5SyBxnB_8bQs0SdhCzvO-92TAYs8zqkeMwIgEAKgkC6AMA_xvXMQlSBJSVBLVaBJRxny5qJcMVhHLerfoaKW-eLXxytNyzPrrEHlIx_sSK6xClWxrHEcVnJupyJQ4txUch63aNrH8PDsbVRPT1COaMd5ogUHoERP1wpokUhAUeVdY%2526e%253D1675879949%2526ff%253D%2526r%253DE6A890C3-0B89-4167-9FF0-39052F8E446B-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DMijexikWCGs1zA7sJlxP1XV_lzg%26uk%3D5BvvuuoLAJVETR5Fxihe6g%26f%3DIMG_1353.MOV%26sz%3D26556203&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cfe309e41cd3640c5fb7c08daf26d13ce%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088848920191278%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=Wc3xW0HT5awp8efbzErq3ltMR%2FNemraSX1cgbE2KyU%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111208	External Email Download Attachment Available until Feb 8, 2023 Snow Geese flying low over the HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAQ7hCCI8UCOxDPeX4MQN5E2_-M_VAfarddTmY_4SHorQ1_Q_o0BmhRj0%252F%2524%257Bf%257D%253Fo%253DAtaMBJosa0nA8Iroh6rfp6eBAW1wBNp1WjYRH9kX3mZG%2526v%253D1%2526x%253D3%2526a%253DCAogNDt-CffLAunBezAeaxVvcm08pst9Yk7XBYNf2KcTx4QSdhCovPq92TAYqMz1keMwIgEAKgkC6AMA_wbUCY1SBL_4z9VaBGaFGPRqJYJg-BoLCHlyXxu3tZrJ1ry_8srV0iBU8kx86gaBq4gLwmBT3OdyJWoAuHOKhic-_ufnuqE3klmpuDMCQM7EZPy_LgEek1UG0yrJS7c%2526e%253D1675880130%2526fl%253D%2526r%253DDFF660DA-DCFD-4B16-8099-D9D336E31119-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DP8th3hMK1IFCESrgWXAFVs6ln4o%26uk%3D-X01e2ZuPL88YuPlYenlYA%26f%3DIMG_9427.MOV%26sz%3D35368490&data=05%7C01%7Cefsec%40efsec.wa.gov%7C8371fc154e224382424508daf26d8412%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088850761685288%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=sf08pb8shA65qAaZfjW6vsrCxNLQ8QBJDVuVpC4jid4%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111210	External Email Hawk in HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111211	External Email Geese flying to HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111214	External Email Download Attachment Available until Feb 8, 2023 Lots of quail in HHH. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAbDuiEo4kQNXiKD2rPCASMpeg8-vAYgMZ6UtGwPzBVsVXPpQWIL6nFaG%252F%2524%257Bf%257D%253Fo%253DAv7zJw_Xi6rbulopA3DYo02Qk8BHUT1B-NrgMEV9uakX%2526v%253D1%2526x%253D3%2526a%253DCAogjke2w8d909AyR3nCvLClmBOaNdhJ5xUwrgCaonneX0sSdhDq7Jy_2TAY6vyXk-MwIgEAKgkC6AMA_wbjD8VSBF6Dz69aBPqcVoZqJddm9apa_uMvs_WWJpYdg5KFQWs4Y2tAZbHifGt0DwKRZu3mIK5yJUHctx-2mzM0S6WIpfcJEVqBDTw2ySAxNxKxeAcjO9sXKc2EalY%2526e%253D1675882790%2526fl%253D%2526r%253DCDA08550-EA2F-4C02-A3E4-E23ADEE74442-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DTYMjUtlkEekhKuXqZKpzyotxAEM%26uk%3DrlPouue3LThOs08DTzShCg%26f%3DIMG_9558.MOV%26sz%3D36095762&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cf7980c3ac9f43f06ac708daf273b14f%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088877107853948%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=ZYyqD5uf%2FmyVp5rR4Q3lPhwr9BiT8heZOKCzxNqsElc%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Christina Caprio	1111219	External Email Download Attachment Available until Feb 8, 2023 Geese flying to hhh. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAbFPdrwR_GmA9S4mmVkkkEatWoXBARdOfK2WbEHLkWPjckXeNHD39Z8x%252F%2524%257Bf%257D%253Fo%253DAvwsQnfEXa1JaY8VyYiVk1h3rfo69nRNwtVpl0rN4GyA%2526v%253D1%2526x%253D3%2526a%253DCAoglcAAXJROEhpTYe_thd7iHEkqoF3ZyNmPKmcfKxylRPoSdhDSvaK_2TAY0s2dk-MwIgEAKgkC6AMA_1JWO9RSBK1ahcFaBPf1nzFqJc_87nzhprV4tuXW1bsxI4T59qPGkiiflyJrxqdRaGCw4sFlNaRyJbLsD4u0wREpGL5eE4BzAU2NnqxoDlqBbh7ezgQ9OuImlnr1iA4%2526e%253D1675882882%2526fl%253D%2526r%253D5A880C1F-0C17-4E99-BBC7-7724D89F9AED-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D7ikivxuHQGNEQZK4ntfKrrqjcEM%26uk%3DKo783NLg1y8GRDJQ3vRJdA%26f%3DIMG_9471.MOV%26sz%3D76810160&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cf174e50ab0cd45cf4c9108daf273e871%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088878428983599%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=kzc43dEfTSo%2FK%2Fy1oShTyH74a7DfODdIfsEaaB5YyMI%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111234	External Email Hawk bathing in HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Christina Caprio	1111237	External Email Download Attachment Available until Feb 8, 2023 Hawk in HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAcIKjkzreuuJ3JPVPWNXxxjJEWcFAZvzZf1xjfRxihaIH75V7fQRaH3N%252F%2524%257Bf%257D%253Fo%253Dammr1Q3i-9Je7kkQdpjH3usnGONcnCJaO4fimBvlVZ2j%2526v%253D1%2526x%253D3%2526a%253DCAogexhwQ8f1c-f7xhEaLuwuaOMcUGAcHFLirl1T5AggKpMSdhCSuYnA2TAYksmElOMwIgEAKgkC6AMA_woPyntSBMkRZwVaBBFofc1qJZ8MFIZDz4bAx1vbpHmjkQ41e9bc0OEngA-9ctgEYr2AUJOpRtVyJeVgxs8iGJkX_b4k2wd0fTBGhzRLuoYqYEz-arZtTf5U98YVE3M%2526e%253D1675884569%2526fl%253D%2526r%253DB41850F0-86B5-4661-80F4-4BD8F4635FCC-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DOo08RvY2SfHcUQc5cpqpn2ZPN4%26uk%3DkEywtdI4SrLQgkdvja1Rtg%26fl%3DIMG_9065.MOV%26sz%3D41494299&data=05%7C01%7Cefsec%40efsec.wa.gov%7Ca6952462e0c24e1f31d408daf277d593%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088895108926795%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=ujZGE91d0LAFiSxq%2BXMyC9ZFM%2BYGa9TRGh44ETCIruk%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111238	External Email Download Attachment Available until Feb 8, 2023 Quail in HHH. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAddI6TzrdQQAHzhp1c3WX3gBoKq2AQLPcmSmXpl8vlJeA-bDlLPVrWJD%252F%2524%257Bf%257D%253Fo%253DAi0jWvX-tP_pXCYGFpvLsWFd5g1SjOKGHP0-n51jpvUA%2526v%253D1%2526x%253D3%2526a%253DCAogzHDX5LFfC4LP7lmKUXFAAJpxqXhDXLI7GdiRYFA4TrgSdhCY4Y7A2TAYmPGJlOMwIgEAKgkC6AMA_2KLs5ISBAGgqrZaBNWtYkNqJSBcgEVPt1ABj4zBmUGCa_p2yWmdF1AkZS7jFJcGj-rRQabLjctyJZmjVktVKZu66d_5XpvSRG5swP6fghwCKgyxSRo81TP3wHWvfUE%2526e%253D1675884656%2526fl%253D%2526r%253D329EEAF9-1AC6-4EA4-9B8D-B6C7502CF206-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DkDbBXPpKMavNFQG_-2P8HRqi_oU%26uk%3D-EG1prspDMEPadgWuwpUlg%26fl%3DIMG_8982.MOV%26sz%3D50288930&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cb379b62cf2d4455c9d5408daf278097a%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088895944961385%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=wu2LI%2BTc2npwKmUSzPjofvqsnXVBI1MOzTQEx8ErGdI%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111241	External Email Download Attachment Available until Feb 8, 2023 Proposed area for wind/solar farm expansion. Shows existing Finley small windmills and expansive Horse Heaven Hills of rolling wheat and shrub-steppe environment full of wildlife and upper end custom homes within the farming plots. Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAS-RLm3B8SIR9FtnKrVKRBV3CsT2Ad-WHV4J6v7K8H90lf8iM3BRjS0q%252F%2524%257Bf%257D%253Fo%253DAsqnT2UDtoQxN8KGrhPHfRtN4qL7Q0QlZLajbLYzeKJu%2526v%253D1%2526x%253D3%2526a%253DCAogFdAcVhzwp9UGfAD6w7qkfP-QxfqvHynlASatMorGhbwSdhDm5ZbA2TAY5vWRlOMwIgEAKgkC6AMA_xfDzuhSBHcKxPZaBFGNLSpqJXKHc2AnzWIaiHnTOJ-IRzLzAnM1RFJ6WWZYjZyhiX7v4qVs5yJvlEw64cRhEr9XWufnV8j486pkYtsmwt9E7GVdOu170SIRku1cU%2526e%253D1675884788%2526fl%253D%2526r%253D5991A541-BF1F-4979-A151-D7747B858C6A-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DXg8RyuqBDZ24llOxddV0vEgTfii%26uk%3D930qjGUSwVoMu3sdrrKWug%26fl%3DIMG_8924.MOV%26sz%3D34475107&data=05%7C01%7Cefsec%40efsec.wa.gov%7C0884e1ef987d4142bb9008daf2785829%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088897247237075%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=I1zCjF2x7O6Gv1IvNdHX4v24tDZsYqL9gewVRrZ%2FSpc%3D&reserved=0 0 bytes Sent from my iPhone	General - opposition	Attachment was not found.	n/a	n/a
Christina Caprio	1111248	External Email Geese flying in the HHH. Christina Caprio Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111249	External Email Download Attachment Available until Feb 8, 2023 Quail in the HHH. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAYP60duJj24mvauMak7W5sJIVh_LAW_EKkrQ-DipwQ-Y8OB7yjeEryw1%252F%2524%257Bf%257D%253Fo%253DAiSDokMsXTU7qs0Oj3ID5Ec8yTfwN_4FKBEbjyp6FM1%2526v%253D1%2526x%253D3%2526a%253DCAog9JwUoQ3fmkYzSgF4uTFkr82AV2kuXMDjpUdPVURAzx0SdhCGwJzA2TAYhtCXIOMwIgEAKgkC6AMA_0jiyghSBEhWH8taBISvLDVqJaS2Owc2ldFfheaFataPGY5NG9cD_s6CChoCBh89IYbj49FrqBRyJYIy4qZSUrHl4bHlyiqT1sdoF1ScU9E0CaLVuNyybOaQhTxKe3A%2526e%253D1675884881%2526fl%253D%2526r%253DD71E2373-8C5D-4DA0-82D2-B579E56DBE46-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DTNp4mQm0CIzI7AvR-eJqApH7PHw%26uk%3Dkd992sm98z_rUgX-CAICYw%26fl%3DIMG_8854.MOV%26sz%3D27801355&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cc9571583c1c46d9575708daf2788f94%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088898183268976%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=ONcfxwVG15gLaet3%2BCNnDJvEAe2yXZJswx3CBsWL2E%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111252	External Email Download Attachment Available until Feb 8, 2023 Snow geese flying from the HHH to the Columbia River. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAVnJFLypi2SaUURrRkFP4iLeXP3AWWA8pmkg0d8pfzpViFVo3B9I-Ax%252F%2524%257Bff%257D%253Fo%253DAj5rGl75UdWbssaaPuf8bOdKN-X97HQnmi2JpX2HGKiH%2526v%253D1%2526x%253D3%2526a%253DCAogw1iTrSqH46yh3ugZ7eKUwdQxc7dVtS0kPicR4lxBgroSdhCA2afA2TAYgOmilOMwIgEAKgkC6AMA_wO0sQZSBIt5c_daBH2X4DFqJYNz4CkKk7tB2L28SGCU5lWkW2g19E3VbgWgGE-hfz1Ja00DielyJSlUOZo8hn4PDdzn0djkZdudhF6sWHE5zxKNpDUI5UjK4zlHJ0g%2526x%253D1675885065%2526ff%253D%2526r%253D891AD918-2BD4-4B7C-88D9-2B7930ED44B4-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526kz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DRXBgKtGOC_Txk5Iy5WTzEDqLXY4%26uk%3DXjDPsdaiAZIB1d6KuJyeDA%26ff%3DIMG_8779.MOV%26sz%3D71341398&data=05%7C01%7Cefsec%40efsec.wa.gov%7C2476c36376bf421ccec008daf278fcec%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088900022842138%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=NF%2BVcodk22xXQkmX%2Fa2khNoy4S6BCovrCIU8yX7vCYU%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111253	External Email Sandhill cranes flying in the HHH. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111254	External Email Download Attachment Available until Feb 8, 2023 Sandhill cranes flying in the HHH. Christina Caprio Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAcBvQQCyOvrXB7gg9srYCqYnrQUYAbQiOv0pVchlicfG0A-FR4rWv2P2%252F%2524%257Bff%257D%253Fo%253DAmI2veLxrPMBNgH6Z0oJBPycQjoXgHml9LYYs65RsBwE%2526v%253D1%2526x%253D3%2526a%253DCAog7DJUGRlqqR201Wq6pP0bsdT9Kx5swYvPUliG9QR9uV4SdhDPwqvA2TAYz9KmlOMwIgEAKgkC6AMA_3NR73lSBCetBRhaBNa_Y_ZqJeekLIGOStxF-ZxJ--QIsVgpHKmrIp-xx-VbeGHNss-muvIT-IRyJSbdaZJomL-fSAkJH5aIo9DyeimjuBvaz-yKTktS3wy8jAFvTuA%2526e%253D1675885128%2526ff%253D%2526r%253D646F32B3-525E-4114-9435-652A11D4733F-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526kz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253Dah7BBomVqk_ANbuMq4OKbZJBpvk%26uk%3DiH6h3F2PNlWNUnU_RtzBuQ%26ff%3DIMG_8767.MOV%26sz%3D60003983&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cebe7b90886734c9a529c08daf2792200%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088900672058551%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=4Eu2mQcUTerr0L9ZaEB3oRlr21lOtUq20bJHSS75Ph4%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111258	External Email Sandhills cranes flying in the hhh. Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111260	External Email The HHH with wheat and shrub steppe without windmills on vistas. The wine industry and the citizens enjoy sweeping vista views. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
joan.owens	1111263	External Email Beautiful shrub-steppe and clean Horse Heaven Hills without solar and wind farms. Priceless. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	Vegetation	The FEIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111264	External Email Download Attachment Available until Feb 8, 2023 Remaining Shrub-steppe in Benton County is a huge deal for supporting the wildlife. This shows the shrub-steppe and rolling wheat hills with custom homes that the solar/wind farm is proposed. The beauty is breathtaking and priceless. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FADC-SBopYVR7D6ICq3QeXG-ULu5aAc3fhgkdJAXYaHNok9MQ8It-KKBU%252F%2524%257Bf%257D%253Fo%253DAtEn4rtx9u_uiZePEaNKKiaQUbGsEw7SoRelcqNpQ-sS%2526v%253D1%2526x%253D3%2526a%253DCAogVoIGmK2ElOER9mciRucbHhoFm_O1mLcW9Cbb5QJ01h0SdhD79__A2TAY-4f7lOMwlgEAKgkC6AMA_1nhKbVSBJQu7IpaBH4ooFRqJY4lQhefxdwJAFVNYX_oy5XNb69fLEBWJsvh00Ro7fAVEFGFkrlyJVpyGugjxTSuNnCExY3Xi_vuLRqWUuJiz1feRVokFYIlQGFzBRw%2526e%253D1675886511%2526fl%253D%2526r%253D34CB9DD3-A92B-43EF-874B-918D77EC03A0-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D0Hh-dT6-xlwRk7MirNmxJ-mX6y4%26uk%3Dqh89vWJnQGGRHaG--A77Q%26f%3DIMG_4374.MOV%26sz%3D21466153&data=05%7C01%7Cefsec%40efsec.wa.gov%7C457fbad5e391479da90708daf27c5a67%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088914734346735%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=xCP%2BiJIDXn3SDRu55JK6Hh6%2B6btBwCvHUYH1E2H9iUA%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111274	External Email Gorgeous hills of the unobstructed HHH. Priceless. Christina Caprio NEPA Environmental Scientist Sent from my iPhone	General - opposition	Attachment was not found.	n/a	n/a
joan.owens	1111276	External Email Download Attachment Available until Feb 8, 2023 Proposed Horse Heaven Hills solar/wind farm area with sweeping views and custom homes. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAWUmoQ3NTDBzWOolCt0BhEWTueanATs6RSvWyoHIUY82F08j_FYEVjNT%252F%2524%257Bf%257D%253Fo%253DAswKo-_keoItUBorekqdRlwXL9hAbND4O6EysNGho7eC%2526v%253D1%2526x%253D3%2526a%253DCAogjfDxJb_ImgGc2hN4mt8iTcaxQUirBe3vn0ReYN721YSdhCm35LB2TAYpu-NleMwlgEAKgkC6AMA_w7SJH9SBJO55qdaBARWM1NqJVbvZqqCkGS9XQLDyC_7fQEt-r5w0qXh3b5EEbFnHLmq5MxTnHZyJY8GkNhfWmYIM-C8nzpOAw1wuqP-Hmmmh5BOgbYUriOf_PT1pdA%2526e%253D1675886819%2526fl%253D%2526r%253D8EA976C1-503F-4C90-96FD-BAE72EAFAC35-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DKXkAG61rJiA1c2BjBDWaf4enjAs%26uk%3DBlRqJDa5JpICJQGSV_fP3A%26f%3DIMG_4324.MOV%26sz%3D78987379&data=05%7C01%7Cefsec%40efsec.wa.gov%7C3ffb2131ee6468cc9d008daf27d11f4%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088917588576353%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=l5PaFKtMUfeYxM%2BQFYVgAFMZS6x33pp%2FBYYPyXOb3WE%3D&reserved=0 0 bytes Sent from my iPhone	General - opposition	Attachment was not found.	n/a	n/a
joan.owens	1111278	External Email Jack rabbit in HHH. Christina Caprio Environmental Scientist Sent from my iPhone	General - opposition	Thank you for your comment.	n/a	n/a
joan.owens	1111282	External Email Ducks in HHH. Christina Caprio Sent from my iPhone	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111285	External Email Download Attachment Available until Feb 8, 2023 Listen. Silence and peace. Priceless. Save the HHH for the citizens, for future generations, for the wildlife, for the flora. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAR8CRUb1H8uJ9-An1eAPV65hZEW1Acsvz1CGlymSNFmhF2pkV_nKe5hh%252F%2524%257Bf%257D%253Fo%253DAtSdXhTvkw4Jj96bf9zJg_il6ypSNVU__6kyKwTAQO68%2526v%253D1%2526x%253D3%2526a%253DCAog0ZpsbGR7VBe9asnsDg3LD_M8uptNZPfmIc1u04LGJjMSdhDfxZzB2TAY39WXleMwIgEAKgkC6AMA_xmZ_FZSBGFkRbVaBMp7mGFqJaz82HqO0KPeSGmm0DlQa_sUVSsQDEkor6Jnq7kmIEHhjQcjn1pyJdgBJMD-IyBjGpGkw2fI6dGLvFtGf_UFZOLHs09qtQnWXfTMu4%2526e%253D1675886979%2526fl%253D%2526r%253DF9CFFAD4-51DB-4C48-B9B0-8521906320DA-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DrWAZtmDgtDGNgKUNUTb_p4irJqY%26uk%3DNoF6QTFwkh0ZajEAWuQ1zw%26f%3DIMG_4268.MOV%26sz%3D46414106&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cb7514d0e00a044ca55b308daf27d71b2%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088919303196098%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=8WyQA6n2laykYeUibWetOJYmMdKxPfnHCUWkW0dBc64%3D&reserved=0 0 bytes Sent from my iPhone	General - opposition	Attachment was not found.	n/a	n/a
joan.owens	1111287	External Email Perspective for the size of the windmill parts. Christina Caprio Environmental Scientist Sent from my iPhone	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111324	External Email Perspective for size of windmill parts. Christina Caprio Environmental Scientist Sent from my iPhone	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1111328	External Email Perspective for size of windmill parts. Christina Caprio Environmental Scientist Sent from my iPhone	General - opposition	Thank you for your comment.	n/a	n/a
joan.owens	1111479	External Email Download Attachment Available until Feb 8, 2023 These windmill blades are enormous and are not recyclable. Windmills do not pay for themselves in their lifecycle. Let's do something smarter with a smaller footprint that doesn't hurt the earth and it inhabitants so much. Try small modular reactors that produce an enormous amount of energy continuously. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAYUTjGL1U_kW6bBdkhNjgrT1SclVAatib_CAYAtlyEGBi8ZYLKPOKcrI%252F%2524%257Bf%257D%253Fo%253DAq_48yYOdNnU3nCC8YIRlJJGS11_m8DV0yWqJHonYEHv%2526v%253D1%2526x%253D3%2526a%253DCAoghY6rWTRpuuOZN5jd_tBCloh8iED-rqcA9wx2iS5wiAISdhCV58HB2TAYIfe8leMwIgEAKgkC6AMA_ztiARVSBPVJyVVaBM4pyshqJQ5GaFD0MVf7C4eVluxv3TPaA29xF_vricQUnYs1rZtIOE3IPl1yJcDOsdbEiNVyv78P17z6AJmWL-3rXN87eG8qVsb-LZD6xElp0RE%2526e%253D1675887590%2526fl%253D%2526r%253DB090F3DC-EC2F-4182-8C24-BBAE8DE946E6-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DrXseX7EQaYSU7D1tDcLeUQi-5Nw%26uk%3DD72ivEV4d4yKz3e8x-OduA%26f%3DIMG_9161.MOV%26sz%3D57301647&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cbc54c41eb6924c8f720708daf27ede3f%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638088925153017151%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=NXrbOjhu%2FVwzJ2zWzrTU79rVRSvw%2FhudpGh2%2FqDBhok%3D&reserved=0 0 bytes Sent from my iPhone	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
joan.owens	1111484	External Email HHH view of hummingbird, local birds such as and Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Audubon Washington	1111492	External Email Dear Director Bumpus, Please see attached letter requesting a 15-day extension on the public comment period for Horse Heaven Hills Wind Farm Draft Environmental Impact Statement. Sincerely, Trina Bayard -- Trina Bayard, Ph.D. Director of Bird Conservation 206.704.4303 Pronouns: she/her Audubon Washington 5902 Lake Washington Blvd. S. Seattle, WA 98118 wa.audubon.org	General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
joan.owens	1111599	External Email I'm writing to request the public comment period for the Horse Heaven Hills Project be extended from January 31, 2023 at least two weeks to Feb 15, 2023. I am a resident of Kennewick WA and I live in the area that will be affected directly by the project. The DEIS is exceedingly large, the online version is not user friendly, and takes significant time to read and comment on. Two weeks will grant reviewers extra time to conduct a more thorough and conscientious review and comment. This will greatly enhance the quality of the work and results that can be achieved by EFSEC through the public commenting process. I would greatly appreciate knowing if this extension is feasible and can be granted forthwith. I believe that letting the public and the many interested parties and agencies know at the earliest possible time will greatly aid the process. Appreciatively, Paul Krupin, BA MS JD 2404 South Lyle St. Kennewick WA 99337 509-531-8390 cell 509-582-5174 landline Paul@Presari.com	General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
joan.owens	1111655	External Email I am writing to express my support for the Horse Heaven Clean Energy Center and the role it will play in helping Washington achieve the ambitious decarbonization goals we set for ourselves with the passage of the Clean Energy Transformation Act (CETA) in 2019. I believe strongly in impact mitigation and value EFSEC s process, but know that Washington s ability to realize a carbon-free future will depend on permitting large-scale clean energy projects in a timely manner just like the Horse Heaven Clean Energy Center. This is a good project with appropriately identified mitigation measures, and backed by an experienced team that will produce up to 1,150 MW of renewable energy through a combination of wind, solar, and battery storage technology. With the passage of CETA, Washington established itself as a leader in the fight to curb global emissions. The state now has a responsibility to ensure the clean energy transition can be achieved in the necessary timeframe to facilitate fossil plant retirement, and in doing we can set an example for the rest of the nation to follow.	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Becky Hughes	1111657	External Email Letting a An Australian investor (motivated by our tax payers subsidy) that hired a Colorado based Company (Scout Energy) to erect 244 wind machines 671 feet high, this is a protected Lewis and Clark Heritage Trail along a ridge/canyon area. These are placed in the Pacific Flyway migration path, degrading the shrub steppe ecosystem. They will have red lights flashing day and night and the noise will be outrageous. This also is dessert and limited water which we pay highly for irrigation, we do not have water to spare. We are already being forced to have an expanded retention pond pushed into our land just for the farmers what more would we be required to pay for with these ugly monsters wasting gallons of our water daily. We have only 45 days to protest before Gov inslee pushes this Tax payer financed program down our throats. And ruins our community. This a residential area with nice homes, farms and vineyard's. This Australian company wants to ship this power out of state as it will be too costly for Kennewick residents to pay for but it will be destroying our land and using our restricted water and destroying our aquifers. This area is also the home of many large predator birds needed to keep the snake and rodent population under control as well as many endangered species who live here year around. .it is also a major bird migrating path and their environment will also be destroyed. https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa This is invasive will cause the land to be destroyed produce horrible air quality blowing dust around and forcing me to not be able to go outside. The dirt already can be restrictive but the construction will be unbearable. Also according to the Harvard study it will increase the temperature another 8*! That is outrageous! We had 110* some days last summer, you will destroy this land. How much more air condoning will we need! This is a Simulated view by developer off Badger Mountain looking over Dallas Road and Badger Canyon at HHH wind farm This area has only a 2 landed farm road allowing all of our residents to travel to exit the area or get farm equipment from one field to another the construction would impact our community negatively! We already are having to deal with KID's unwanted construction and the massive power line they are planning on constructing for them tearing up our community and costing taxpayer money in our area. Residents need to be addressed. This is very unreasonable, if you want this put it in a uninhabited area not a residential area! This Project is backed by Australian investors (motivated by our tax payers subsidy) that hired a Colorado based Company (Scout Energy) to erect 244 wind machines 671 feet tall for 24 miles on private wheat farms, protected Lewis and Clark Heritage Trail along a ridge/canyon area. These are placed in the Pacific Flyway migration path, degrading the shrub steppe ecosystem (federally protected birds and plants.) There is no energy/economic impact of this project other than the out of state user or large corporation that will benefit from purchasing a "green energy source" with transferable tax credits to another facility not meeting energy guidelines (no penalty.) Other states denied this project. Our local authorities and public were bypassed input and it was directly placed in Olympia! Negatively impacting our wine and agriculture, higher energy bills for consumers. Currently Europeans are rethinking this minimum producing wind turbine energy and beginning to dismantle them. European data points to health hazards including the environmental impact (Netherlands and Germany dismantling has begun). One of the Hawk pairs that lives in the tree at the intersection of Badger Rd and Badger Canyon Rd. There are many nests in our canyon this is only one. We also have other protected species living in our land. There has been no real impact statements produced locally only the investors who bypassed us. -- Becky Hughes Concerned citizen of Badger canyon Kennewick, WA 99338	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Water Resources	The EIS includes estimates for water usage for construction and operation phases in Section 3.4.1.5. An estimated 120 million gallons of water is required for Project construction. Project operation is estimated to require 5,000 gallons per day for facilities and 2,025,000 gallons annually for solar panel washing. Impacts to water are assessed in Section 4.4 and no significant unavoidable adverse impacts were identified. The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation. According to Appendix J the Wallula-Dodd Road Water System would be willing to enter into a contract with the Horse Heaven Project to supply the required water for construction.	Section 3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Vegetation	The FEIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 3.5 and 4.5	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Addtional air quality modeling will be perfromed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary. The Harvard study of 0.24 degress Celcius warming is theoretical model that is based on the assumption that one third of the continental U.S. is covered with enough wind turbines to meet present-day U.S. electricity demand. The Horse Heaven project is a minuscule fraction of the total area included in the Harvard estimate and even if the modeled result were true, the relative magnitude of the purported temperature change would not be expected to result in a measurable change in local climate conditions.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
joan.owens	1111705	External Email Dear Chair Drew and Director Bumpus: Due to the complexity and length of the DEIS for the HH Wind and Solar Project, we request an extension to the public comment period slated to end January 31, 2023. In addition, the current 45 day public comment period has included multiple holidays (4+) making it impossible for the public to access copies of the DEIS at local libraries or to contact EFSEC staff and local agencies for information or questions on those days. Please grant our request for an extension of the DESI public comment period. Up to 30 days more would allow for local participation/commenting on this important document. An in-person public comment meeting in the Tri-Cities is also needed. Commenting online or by USPS works for many, but not for all. To allow equitable opportunities for all locals to comment, a public comment meeting for the HH Wind Project DEIS is requested. (Like the one EFSEC offered for the Watoma Wind Project). Thank you in advance for your consideration of extending the DEIS public comment period up to 30 days beyond January 31, 2023 and for scheduling an in-person public comment meeting in the Tri-Cities. Respectfully, Pam Minelli -- Secretary, TRI-CITIES C.A.R.E.S. Phone: 509-539-6788 Email: pam@tricitiescares.org TRI-CITIES C.A.R.E.S Community | Action for | Responsible | Environmental | Stewardship Visit: www.TriCitiesCARES.org	General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). Copies of Draft EIS along with Application for Site Certification were available at 8 local libraries on December 19, 2022. Names and addresses of these libraries were provided in the notice. In addition, EFSEC's phone number, email address and mailing address were provided in the notice for requests of physical hard copies.	n/a	n/a
joan.owens	1111706	External Email Please stop destroying the views and environment in the Columbia Basin/Horse Heaven Hills. No more wind farms! Sent from my iPhone	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
joan.owens	1111708	External Email This email is being sent to you as the lead agency to request a public hearing on the Horse Heaven Wind Farm project. According to the Washington State Environmental Policy Act Handbook 2018, "The lead agency is required to hold a public hearing if 50 or more local persons within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS." Judy Guse 104902 E Tripple Vista Dr Kennewick, WA 99338	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
joan.owens	1111778	External Email I would like to request for a public hearing on the Horse Heaven Hills wind farm project. Thanks Vince Shawver West Richland Wa	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1111779	External Email The lead agency is required to hold a public hearing if 50 or more local persons within the agency"s jurisdiction or who would be adversely impacted by the proposal,make a written request within 30 days of the issue date of the draft EIS. thank you Scott Siefken 2306 hood ave apt H Richland wa,99354 Sent from my iPad Begin forwarded message: From: Judy Date: January 14, 2023 at 3:59:48 PM PST To: goosie1515@aol.com Subject: Horse Heaven Wind Farm Public Hearing Request- Please send request by 1/18/23 Reply-To: Judy Hi Everyone! According to the Washington State Environmental Policy Act Handbook 2018, EFSEC is required to hold a public hearing if 50 or more local people make a written request. This request must be made within 30 days of the Draft Environmental Impact Statement release date which was 12/19/22. Therefore, all requests must be sent on or before 1/18/23. Will 50 of you make this request? When you do, please notify me so that I can keep track of how many requests have been submitted. Follow these email instructions: Send to: email addresses listed below, enter the subject line and the body text shown below, remember to include your contact information. To: efsec@efsec.wa.gov; sonia.bumpus@efsec.wa.gov; kathleen.drew@efsec.wa.gov Subject: Horse Heaven Wind Farm Public Hearing Request This email is being sent to you as the lead agency to request a public hearing on the Horse Heaven Wind Farm project. According to the Washington State Environmental Policy Act Handbook 2018, "The lead agency is required to hold a public hearing if 50 or more local persons within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS." Thank you, [Your name] [Your street address] [City, State, ZIP]	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
joan.owens	1111863	External Email I am writing a formal complaint on the attempted horse heaven wind farm project. This project will adversely affect my family in a negative way. The wind farm also affects TRI cities in a negative way and the negatives outweigh the benefits. I bought land at my location to be able to see the hawks fly in the badger canyon. The wind farm will decimate our hawk population. I bought my land for the beautiful rolling hills and the starry county night skies. The eye sores of a wind farm in my back yard will ruin the value of my most valuable asset which is my home. The bright blinking lights will be a nuisance and diminish my quality of life. Not to mention the noise, traffic, and dust that will affect my family's health and we'll being. I reject the proposal to put any wind farm in our back yard that will do nothing but make our lives worse. I am prepared to pursue any legal action to stop you from harming my family and those around me. Brett Turner Get Outlook for Android	Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	n/a	4.16 - Discussion of Project impacts on property values
			General - opposition	Comments acknowledged. For discussion of potential project impacts and proposed mitigations refer to respective chapters of EIS on visual aspects, noise, Public Health and Safety.	n/a	n/a
joan.owens	1114799	External Email This email is being sent to you as the lead agency to request a public hearing for the Horse Heaven Wind/Solar Farm project. Hailey Caprio 32604 Pico Drive Kennewick, Washington Get Outlook for iOS	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
joan.owens	1114828	External Email To whom this may concern Please listen to the public opinion and owners of this beautiful land you want to destroy. We Tri Citians don't want this Solar project to transpire, we say no! We want, we have the right to look out into the horizon and see our God given Sky we have the right to our natural beauty, our land, our view. It belongs to us, not a our Governor, nor a Bullheaded solar-power company. Don't come here with false hood about green energy, we know this is false. Refer to Sharyl Attkisson: Is "Green" really clean. These also will be obsolete very soon and you will walk away laughing all the way to the bank leaving us with the eyesore. We feel we are not ready to allow such a drastic forever project that would impact our Community and our Beautiful Columbia Basin. We are not on board with those making this permanent decision. There are better out of the way hills to go to. We have done enough on our part as you can see anywhere you go. Driving into Tri Cities from Walla Walla, Turbines everywhere. ENOUGH!! Enough is enough! You have failed to show the benefits other than buying out politicians you have failed to provide alternatives, like the Tulip flower design and others. We want you and many companies to stay away from rural farm Land and population. We take it seriously when you kill our wildlife foul And is this possibly a culprit in aviation bird flu virus with carcasses piling up at base. NO NO NO! Just No! Seriously, Sonia Ayala 700 rd. 32 Pasco, wa 99301	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1114894	External Email As required by the Washington State Environmental Policy Act Handbook 2018: The lead agency is required to hold a public hearing if 50 or more local personal within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS. If this email does not suffice as a "written request" then please promptly inform me and others that have emailed of the proper address to direct a formally written and signed request. Jerrod Sessler 84009 West Old Inland Empire Highway Prosser, WA 99350 The proposed Horse Heaven Wind Farm project is problematic in several ways. The first and most importantly is that it is a collaboration of private and public organizations that do not uniquely have the authority to acquire and use the land for a for-profit venture under the 5th Amendment of the US Constitution or under any other section of the state or federal Constitutions. Furthermore, there is no demonstration that the resulting energy generation is needed to support the demands of Washington residents. If it is needed for Oregon or California residents then it would be questionable why a prized portion of our landscape, not to mention the environmental concerns would be sacrificed for such a project. The overall environmental impact of wind energy generation has not been thoroughly researched and proven to be resilient without the subsidization as a result of political persuasion which creates an unfair and unreasonable imbalance economically for all other forms of energy. There are other factors that must be studied and considered in a non-partisan way prior to making any decisions as to how to proceed or even if a project such as this should be allowed. Let's say YES to America, together! Jerrod Jerrod Sessler Congressional Candidate about.me/jsessler	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
joan.owens	1114901	External Email We need a hearing A other complaint is they have not done adverse testing on each proposed wind turbine, they have not even given exact location of each turbine. We need testing as to the affects on people health, noise studies or killing wild birds, animals and environment! Lights, noise and killing protected animals! Latest is the deaths of Whales off the east coast! Here it is not only flashing lights increased land temperature, pollution of the land as each unit requires 80 gallons of oil to be changed out every 3 months that is known to leak into the soil, massive water needs. The fact that the fiberglass blades are not recyclable and massive blades have to be buried in landfills. Each unit only lasts 20 yrs and costs almost 1 million dollars to replace. New infrastructure has to be laid to transport this massively expensive power to where it is needed. -- Becky Hughes 25102 s sunset meadow loop Kennewick wash 99338 Becky@wmhughes.com	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Energy and Natural Resources	The Project's Energy Natural Resources Section of the DEIS includes recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
joan.owens	1114925	External Email This email is being sent to you as the lead agency to request a public hearing on the Horse Heaven Wind Farm project. According to the Washington State Environmental Policy Act Handbook 2018, "The lead agency is required to hold a public hearing if 50 or more local persons within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS." Thank you, Gary Schaefer 54807 E.Badger Road Benton Cit, Wa 99320 I have some major concerns about the healthy effects for us that are living near those with large windmills not to mention the devaluation of land prices we are relying on for resale and also the total lack of concern for the legal process of county regulations that we have in place also the damage to all of the animals be it owls, hawks, deer, antelope, and all other animals that I have not mentioned	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS.	n/a	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	n/a	4.16 - Discussion of Project impacts on property values
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
joan.owens	1114927	External Email This email is being sent to you as the lead agency to request a public hearing on the Horse Heaven Wind Farm project. According to the Washington State Environmental Policy Act Handbook 2018, "The lead agency is required to hold a public hearing if 50 or more local persons within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS." I do not want the Windmills. They are an eye sore to look at, they are loud, they are harmful to wildlife. Thank you, Tara Kentch 9 S Goose Gap Rd Benton City WA 99320	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
joan.owens	1114928	External Email Dear EFSEC: Horse Heaven Wind Farm Public Hearing Request This email is being sent to you as the lead agency to request a public hearing on the Horse Heaven Wind Farm project. According to the Washington State Environmental Policy Act Handbook 2018, "The lead agency is required to hold a public hearing if 50 or more local persons within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS." The mere thought of all those mega tall space needle sized ugly windmills that will only generate electricity 40% of the time and often in spring and fall when we don't need it and their red light district flashing all night, every night of the 365 nights of the year would be an impact that is not currently considered. I can already see on my eastern horizon hundreds of those flashing red lights in western Walla Walla county on the 9 mile Windmill farm and if scum bag Scout jams these down our throat to see them to the western horizon as well on the unspoiled Horse Heaven Hills would be worse yet. Thank you, Kurt D. Clemmens 987 Lake Rd. Burbank, WA 99323 Sent from my iPhone	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
			Visual Aspects, Light and Glare	Potential Project impacts and mitigations on visual, light and glare are comprehensively discussed in chapter 4.10 of EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1114937	External Email Dear EFSEC: Horse Heaven Wind Farm Public Hearing Request This email is being sent to you as the lead agency to request a public hearing on the Horse Heaven Wind Farm project. According to the Washington State Environmental Policy Act Handbook 2018, "The lead agency is required to hold a public hearing if 50 or more local persons within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS." The mere thought of all those mega tall space needle sized ugly windmills that will only generate electricity 40% of the time and often in spring and fall when we don't need it and their red light district flashing all night, every night of the 365 nights of the year would be an impact that is not currently considered. I can already see on my eastern horizon hundreds of those flashing red lights in western Walla Walla county on the 9 mile Windmill farm and if scum bag Scout jams these down our throat to see them to the western horizon as well on the unspoiled Horse Heaven Hills would be worse yet. Thank you, Rodney Scrimsher 6821 W 20th Ave Kennewick, WA 99338 rodneyscrimsher@gmail.com	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
			Visual Aspects, Light and Glare	Potential Project impacts and mitigations on visual, light and glare are comprehensively discussed in chapter 4.10 of EIS.	n/a	n/a
joan.owens	1114958	External Email Here are pdf files for the latest Herald newspaper articles If you have any questions please feel free to call or email me any time.	Visual Aspects, Light and Glare	Potential Project impacts and mitigations on visual, light and glare are comprehensively discussed in chapter 4.10 of EIS.	n/a	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1114960	External Email Dear EFSEC: Horse Heaven Wind Farm Public Hearing Request This email is being sent to you as the lead agency to request a public hearing on the Horse Heaven Wind Farm project. According to the Washington State Environmental Policy Act Handbook 2018, "The lead agency is required to hold a public hearing if 50 or more local persons within the agency's jurisdiction or who would be adversely impacted by the proposal, make a written request within 30 days of the issue date of the draft EIS." The mere thought of all those mega tall space needle sized ugly windmills that will only generate electricity 40% of the time and often in spring and fall when we don't need it and their red light district flashing all night, every night of the 365 nights of the year would be an impact that is not currently considered. I can already see on my eastern horizon hundreds of those flashing red lights in western Walla Walla county on the 9 mile Windmill farm and if scum bag Scout jams these down our throat to see them to the western horizon as well on the unspoiled Horse Heaven Hills would be worse yet. Thank you, John Rose 2912 Rd 48, Pasco, WA. 99301	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period.	n/a	n/a
			Visual Aspects, Light and Glare	Potential Project impacts and mitigations on visual, light and glare are comprehensively discussed in chapter 4.10 of EIS and will be finalized in respective chapters of FEIS.	n/a	n/a
joan.owens	1114964	External Email I am not in favor! My concerns are the INVASIONS!! The invasion on the natural beauty of the land. The invasion on all the natural wildlife. The invasion on tranquility of residents who live there for a reason..to enjoy the tranquility, wildlife and natural beauty!!! Overall bad idea!!!! Jan Brown Sent from the all new AOL app for Android	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1114975	External Email Considering the DEIS is 1331 pages and the release date was close to the holidays and people not available I respectfully request an extension of 90 days for comments by the public regarding this project. Topics to be considered: impact to local business impact to diversified agriculture recreation loss property devaluation damage by construction of the project Environmental damage (Pacific Flyway and shrub steppe) Respectfully, Gayle Graves 73206 E Sundown PR SE, Kennewick, WA 99338	General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
joan.owens	1114997	External Email I am reading and reviewing the Horse Heaven Hills DEIS. This is one complex and lengthy document that is filled with serious quality issues of note. I am requesting that at least one public meeting be held in the Tri-Cities and that the comment period be extended to accommodate providing the public adequate note and opportunity to comment at that public meeting. This project will have a disproportionate impact to the citizens of Benton County when compared to the number of people in proximity to every other wind project in the state combined. There are concerns about the risk of negative impacts on real estate values, on the wine industry, and on tourism. The public deserves to be recognized, listed to and understood. A public hearing will contribute to fulfilling the purpose of SEPA and assuring that a just and rationale outcome is achieved. I request that EFSEC reply to this request. It is being reported to me that more than fifty requests for a public meeting have been submitted. Appreciatively, Paul Krupin, BA MS JD 2404 South Lyle St. Kennewick WA 99337 509-531-8390 cell 509-582-5174 landline Paul@Presari.com	General - Question for EFSEC	In accordance with SEPA 2018 handbook and WAC guidelines, notice of public hearing was published on EFSEC website on January 20, 2023 on https://www.efsec.wa.gov/energy-facilities/horse-heaven-wind-project/horse-heaven-sepa. The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period Regarding request for extension, under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS. A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.	n/a	n/a
joan.owens	1115002	External Email Please do not let more wind turbines be built in Benton county they are terrible for the wildlife and are an eyesore to the people. Thanks, Dave Locke Sent from my iPad	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
joan.owens	1115297	External Email Dear Site Evaluation Council Members, I support the Horse Heaven Clean Energy Center. We need clean energy, and this will be a good source. Please approve the project! Thank you, Peter Fiddler 5744 28th Ave. NE Seattle, WA 98105 206-779-0309	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1115308	External Email Download Attachment Available until Feb 18, 2023 Just a video showing a typical day of numerous birds on the Columbia River which wraps around the HHH proposed area. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FASuHx2l_PiIHt-bmhiNH1zB_nbFUAUqRxlbummsN4JxeXdsYokPdnJ5S%252F%2524%257Bf%257D%253Fo%253DAnmvBgNLFPvSlpEkDPzc7vRVNy3t543z2lcj7lMCyU1x%2526v%253D1%2526x%253D3%2526a%253DCAog2dIUD-wMbUPZJE3_uQQkdVIMmG2VfUg4mMDACY18vEUSdhC3q5_c3DAYt7uasOYwIgEAKgkC6AMA_z-DIFRSBH-dsVRaBN2cnUqJdoO1TAII_Nw14WzQ2A3bViH7gJMv3pT9vD7HFUy6kPP45VtuVyJVWZG0muc-JvJ1YTWJouCBzRNBnzoLDq6pC_WcYxbFucajMF6_A%2526e%253D1676748955%2526fl%253D%2526r%253D76AA6062-F55F-49E0-9A14-46D56FA0D388-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DOXlqGbm9B9E4M26hErYP_xK-tSQ%26uk%3D77hUubqUbnExCILLPA6Ipg%26fl%3DIMG_1002.MOV%26sz%3D24856707&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cdd7ee89d66d24134e21c08dafa546648%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638097539071874601%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=86ElmAWuGHt0k99esdkgiilQgaeUkjeY%2Fex02P%2BtjRM%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115388	External Email Dear People, So many of the services and conveniences we depend on in modern society require oil to fuel them. Even so, we must transition to cleaner, more economically and environmentally sound technologies. Such transitions will not happen overnight. We The People can facilitate the change by learning to use less, and make personal adjustments in our use of energy rather than condoning more of the same pollutive industrial practices. One way or another, we will be inconvenienced - either now, by choice - or in the long run, by necessity, when natural resources deplete and climatic dynamics dictate limited options. What will we choose? Some people love this globe like their own mother - have called it home for thousands of years. In fact, some recognize themselves, and this earth as part of a vast web of life that reaches far beyond the horizons of our world ... a sanctuary of life ... sacred grounds where dreams are born and we, as children of life, are held and nurtured. When we desecrate these sacred grounds, we rip that web to shreds - pollute the waters, foul the air, strip once fertile soils bare and dump our garbage everywhere - raping the beloved mother of life, destroying the cherished home. Is that how you treat your mother? Is that what you want for your home? Humans were created to care for this garden planet - not to pollute and destroy it. For the moment, we still have a choice. That moment will pass. Will we pass with it, or will we choose to heal the wounds and stop the wounding of these treasured grounds? I am writing to express my support for the Horse Heaven Clean Energy Center and the role it will play in helping Washington achieve the ambitious decarbonization goals we set for ourselves with the passage of the Clean Energy Transformation Act (CETA) in 2019. I believe strongly in impact mitigation and value EFSEC's process, but know that Washington's ability to realize a carbon-free future will depend on permitting large-scale clean energy projects in a timely manner just like the Horse Heaven Clean Energy Center This is a good project with appropriately identified mitigation measures, backed by an experienced team that will produce up to 1,150 MW of renewable energy through a combination of wind, solar, and battery storage technology. With the passage of CETA, Washington established itself as a leader in the fight to curb global emissions. The state now has a responsibility to ensure the clean energy transition can be achieved in the necessary timeframe to facilitate fossil plant retirement - so doing, we can set an example for the rest of the nation to follow. Thank you for your consideration. Sincerely, Kathleen Allen https://tahomahome.weebly.com	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115394	External Email To whom it may concern, I am concerned that another windmill farm will be placed at Horse Haven Hills Kennewick, Wa. Please stop putting up windmills in our state. They ruin the natural beauty of our State. We will never get the natural areas back. They will always be ruined. Ellensburg and Jump off Joe in Kennewick ruined forever! Please stop hurting the environment. Sincerely, Natalie Williams	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115397	External Email Thank you for the Spanish notification. In a conversation with the Superintendent of Schools for KIBE school district serving Benton City, I was informed that they have a large percentage of children that are not proficient in English, which probably means their parents are not either. I noticed that the Spanish notification was posted January 22, vs. the English version on January 19. In the interest of equal opportunity and to avoid disparate treatment, I believe the comment period should be extended for a 3 day period.	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS. EFSEC granted the maximum public comment period for the project which is 45 days. Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
joan.owens	1115400	External Email The notice of DEIS publication translated into Spanish was not published until 12/22/22, cutting Spanish speaker opportunity to comment by 3 days. Given the high percentage of Spanish only speakers/readers in this area, an additional 3 days should be added to the public comment period. Karen Brun 105506 Tripple Vista Drive Kennewick, WA 99338 509-628-0826	General - Question for EFSEC	Comment acknowledged and is included in the administrative record for the EIS. EFSEC granted the maximum public comment period for the project which is 45 days. Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1115453	External Email Download Attachment Available until Feb 20, 2023 Lots of quail and other birds in the Horse Heaven Hills. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FASTY6wlo1eBN-OuhISBAAsSUzPbxAYqavebLr-AFhiXiB6hWOJfVZ5f0%252F%2524%257Bf%257D%253Fo%253DAm1dxeGso53_tdmM-PeEklCwz7d1RHsSyZxbiU49JhNU%2526v%253D1%2526x%253D3%2526a%253DCAogyRhYR05_-uJViA9HlGZIunRli_VCZUk0rW-6Y32rLBMSdhCMhoy23TAYjJaHiucwlgEAKgkC6AMA_24C5OFSBJTM9vFaBNVnl_RqJZCVjz5MWkBHTQ74q5-qAA3GPjit1mOJFT_XJ6Skl2uLD2rtne9yJdTAE3ZH_erJZAJTjz1vjl51a0ZxJwG7s6o3lt0mOHycTui_BT0%2526e%253D1676937382%2526fl%253D%2526r%253D84675DC6-7A14-4D45-9586-D525DF6E631C-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D1EVc7eKy72kBQyXNPV3JGogK7TA%26uk%3DnExWQvpvgkCIKg_59YZ08Q%26f%3DIMG_1022.MOV%26sz%3D29602729&data=05%7C01%7Cefsec%40efsec.wa.gov%7C9700e02b0046465fcde08dafc0b1d61%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638099423434717425%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=KXLwLrlsZ87EbbGAjUpGzGaouy3Zw0f4CbzGzqPK%2Fc4%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115455	External Email Download Attachment Available until Feb 20, 2023 Many quail and other native birds as an every day event in the HHH. Dawn and dusk are the biggest feeding times. Though this is midday. Christina Caprio NEPA Environmental Scientist Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAexyHHkAEzVsevWXhNVylcWjwkDZAXtsAGEfuDy6A4IAKxmWIC6C6BkP%252F%2524%257Bf%257D%253Fo%253DAkghY6yK1Z4Qth5py_FxAdJRfe4nuUq-qij5waCFr8d7%2526v%253D1%2526x%253D3%2526a%253DCAoggg8N12OTf2ooMo2NSpV1Q7KrrXt0v4gEVFgO8jA-oggSdhDA1pC23TAYwO3aLiucwlgEAKgkC6AMA_xpvcvZ5BKPCQNlaBILoGQ9qJY04l8DEwpC3Jn1nZ7phgnqcPMtftIOFeZYQT4yhi6kK20Yhuo1yJdibU01pxXUeMRXjj7DdqF0V344M9qC2tKur__5xDINYieUsYmI%2526e%253D1676937458%2526fl%253D%2526r%253D878780C4-A5B9-4D16-987C-499CE1954E74-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253D5PUEaLgYvyR8tPhrfcZkjLM_Lt4%26uk%3DXhJuTyE9KyDZBCgiFQiuHw%26f%3DIMG_1021.MOV%26sz%3D24818255&data=05%7C01%7Cefsec%40efsec.wa.gov%7C89ae9da4388c4155e21b08dafc0b4887%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638099423962117734%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C1000%7C%7C%7C&sdata=e8oJ1FzUNCJljrYmUVr23%2Fkl0tOnS7f8le6u%2FyuaGHg%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115456	External Email This project is massive and a horrible idea. This would destroy scenic vistas . Our tourism values and economic growth would be negatively affected. It needs to be put somewhere so many people would not be effected and not so conspicuous. 100 turbines would be visible from downtown Richland the main I-82 entrance to Kennewick would have towers on both sides. It would look terrible. Has an adequate analysis been completed to address the impacts it will have on the Tri-Cities, one of the largest populations in the State. There would be zero effect on carbon emissions because it would replace hydro power, a renewable energy. Washington State does not have a fossil fuel problem. Forget about this. The only people that would be happy are Gov. Insley and Olympia politicians. They would have a warm fuzzy feeling at our expense. Ted Lewis 686 S. Idaho Street	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115457	External Email To whom it may concern, The Horse Heaven Clean Energy Center underscores the significant economic opportunity of building out Washington state's clean energy future. The project will help advance the state's ambitious climate goals while creating a substantial number of family-wage jobs and economic activity in Benton and Franklin Counties. Developing the project's hybrid combination of wind, solar, and battery storage applications will create as many as 930 jobs for skilled construction workers. Through building local access roads and foundations to support the technology, the project will employ crane operators, electricians, and skilled laborers. The project will be a significant source of employment in the local area. The jobs required by this project are high-paying, family-wage opportunities. Economic impact studies examining the project estimated the typical income per worker during the construction phase to be $113,500. That's nearly 60% higher than the average regional compensation across industries and 37% higher than the compensation in the construction industry for Benton and Franklin Counties. The studies also showed that at full build-out, the project could amount to at least $73 million in labor income and $143 million in total economic output. Following construction, the project will also create a combined direct, indirect and induced total of 56 long-term high-paying jobs during its estimated 30-year life span. While the project brings clear and substantial benefits to families and workers in the local area, it will also help advance Washington state's broader clean energy economy. The project will keep workers busy in our Ports and shipping industry as the turbine parts make their way to the Tri-Cities. It will also drive further investments in new and existing workforce development and educational programs to prepare students for careers in the growing renewable energy sector. Such programs already exist at Walla Walla Community College, Bellingham Technical College, and Centralia College, all of which will increasingly be important as these projects continue to move forward. I urge EFSEC to advance this project to take advantage of these clear opportunities. Thank you for your consideration. Carly -- Carly Rang (she/they) Tri-Cities, WA	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115458	External Email I'm sending this email to the Public Hearing and Request for Comments. I pray that the people who have the power to approve or disapprove the installations of the wind farms on the Horse heaven Hills will decide to not approve installation. I'm sure you have read all the pros and cons for the installation of these wind turbines. First and foremost is the damage they will do to our beautiful hills, birds, animals and air. I'm told that the energy they produce will not be used by the tri-cities. So if that is true, then don't build them in our backyard. This is one project that shouldn't happen. They are both environmentally and economically a disaster. Wind turbines never pay for themselves. The only reason for their existence is because taxpayer money supports them. Again I will close begging you to not approve this. Sincerely Ira Johnson 509-987-3013	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1115465	External Email Good day, I want to express my support of the Horse Heaven Hills Wind Farm Project for the following reasons: 1. We cannot continue to paint ourselves into a corner with fossil fuels - we must move to clean, renewable energy. This project lets us create clean, renewable energy right here in the TriCities. 2. We need jobs. This project will create nearly 1,000 jobs during construction and some after to maintain the site. 3. The farm just increases our existing wind farm so is already in place, just being expanded. 4. Money will go to Benton and Franklin counties and towards education. 5. Farmers need to continue to own and use their land. This revenue will help them survive and thrive without selling out to developers. I am a resident and home owner in Pasco, WA. Thank you, Pamela Gaudet	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115467	External Email I am writing to you today to tell you that the wind project on Horse Heaven Hills is terrible! The Horse Heaven Hills are a beautiful view seen from all over the Tri-Cities and the wind turbines will ruin that view. I live in West Richland and will be affected by this view, as well as the noise, wind issues and sunlight glaring off the turbines. The "power" that will be made by these turbines will go to Western Washington! Why would we do that? Western Washington needs to figure out their own energy issues, not use our land and views for their benefit. For so long we on the eastern side of the Cascades, have been the step children of the west side of Washington. It's time for western Washington to take care of itself. I respectfully ask that you don't let the wind turbine project go forward. Thank you, Geneva Carroll West Richland, WA	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115495	External Email I am writing to express my STRONG OPPOSITION to the Horse Heaven Clean Energy Center! This project should NOT be placed so closed to a growing urban center like the Tri-Cities, WA. It will destroy much of the visual and desirable appeal of living in southeastern Washington State. Thank you for your consideration. Thank you, David L. Mitchell	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
joan.owens	1115540	External Email I'm writing to express my disapproval of the "Horse Heaven Clean Energy Center" plan proposed by Scout Clean Energy. Wind turbines are inefficient in Washington and are not made of sustainable materials. In addition, it would largely be replacing what is already considered "clean energy," as less than 10% of our state is powered by gas or coal. While hydro and solar power both present problems, those problems will not be solved by destroying valuable land or creating more unrecyclable garbage—to say nothing of how such a farm would disrupt our local and migratory flighted populations. Our focus should be on renewable, sustainable energy such as nuclear and fission power. Solving the issue of power storage should also take high priority, as lithium mining is in no way "clean" or renewable. This is a cash grab by a company not remotely invested in Washington's future; they don't even live here. Please do not allow this docket to pass. Thank you for your consideration.	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115541	External Email The windfarm and solar project is far more than just solar panels and wind mills. The Governor of Washington State is also pushing for the removal of the snake river dams. These dams produce no carbon footprint, they produce clean, Inexpensive power, the dams help control flooding and provides the means to ship products by water, witch is very important for food producers in Eastern Washington. The dams also allow access to water for irrigation to farms in eastern Washington. I believe that Jay Inslee is putting his wanting to profit from his personal investments in stocks in these company's That will be putting in the wind mills and solar panels. We do not need anymore of Nancy Pelosi style stock Investing in our State. That is why I for one Washington Resident say NO to unreliable wind and solar power. Sent from Mail for Windows	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1115554	External Email Download Attachment Available until Feb 24, 2023 Attached is a video showing a large amount if robins flying around the Horse Heaven Hills in the proposed action area. The impact from the proposed action is immense to human health and safety, the fauna and the flora. All for windmills that never ever pay for themselves. That is not green at all. Then the windmills are mixed waste and can't be recycled- like the immensely sized blades for these Seattle Space Needle sized windmills. Christina Caprio Click to Download https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.icloud.com%2Fattachment%2F%3Fu%3Dhttps%253A%252F%252Fcvws.icloud-content.com%252FB%252FAblEftE7hGcn7sB-VCy2GjKDWMoxAe59_ch7Vnt0ECUvmOXRV2kGuu37%252F%2524%257Bf%257D%253Fo%253DAgs0r2bDvUgYUOJv9nNkRoQw_iSRUec2NkpQXbhO_8BU%2526v%253D1%2526x%253D3%2526a%253DCAog7o-wDk943kANa987AQl4WCBZtwfOIjkK0wXdISvTNjwSdhCaxuXN3jAYmtbgoegwlgEAKgkC6AMA_09TIFxSBINYyjFaBAa67ftqJaSd-Jq4zUuVa5meqFcnE0Z0Wo5RVEbSmp6DcJUOhE955MHDYMNyJfVBUKZJBZWAXsprCzXwjimgRkWVEG8-otHepm9BsxtEIOebkxw%2526e%253D1677255519%2526fl%253D%2526r%253DE25116DD-A7B8-4862-87C4-C95A2D0BF59F-1%2526k%253D%2524%257Buk%257D%2526ckc%253Dcom.apple.largeattachment%2526ckz%253DD1ED61DC-CB9F-454B-A2E4-BF1F96412F6F%2526p%253D57%2526s%253DvBLUCpqpas5IZAGyFWSBuY2Aomk%26uk%3Duhkby7Q-2_3fDXnyUGt6mg%26f%3DIMG_1055.MOV%26sz%3D66478562&data=05%7C01%7Cefsec%40efsec.wa.gov%7Cb143598a16994074fa8f08dafeefd4f7%7C11d0e217264e400a8ba057dcc127d72d%7C0%7C0%7C638102604505647353%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=6zmIa6Sf8PBK5GNKTMdMV2b%2FDC7DU%2FP7XoAoYkvpOa8%3D&reserved=0 0 bytes Sent from my iPhone	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1115555	External Email Hi, I would like to attend the public hearing on the wind turbine project in Horse Heaven Hills. Are you able to share when public commentary will be shared during the meeting? I probably won't be able to stay for the whole meeting so sharing my feedback below. I'm extremely concerned about this wind turbine project as a citizen of Kennewick. I don't understand why this project has to be so close to our city and impact the natural beauty that we enjoy everyday. There is so much land between Tri Cities and Oregon where these turbines wouldn't have to impact our everyday life. I enjoy views of the Horse Heaven Hills everyday from my house and I do believe my property will be devalued but I'm more concerned about everyone losing the natural beauty and landscape that we enjoy so close to us. Not to mention the nighttime flashing red lights, shadow flickers, and overall visual aesthetics. We already provide nuclear energy and hydro-electric energy in this region. Please let us enjoy our natural beauty and move this project somewhere it doesn't impact the citizens of Tri Cities so much. It starts to feel like we are being taken advantage of. We know this energy isn't necessarily needed here and we also know that although it can be windy here off and on, majority of the time these wind turbines will not be harnessing much energy. Thank you for considering. Regards, Lisa Smith	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Project location is selected based on several factors including but not limited to viable above-average wind speeds in the area, sufficient flat area and solar irradiance to site solar PV panel, proximity to existing transmission lines and willingness of to participate in the Project. Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
joan.owens	1115567	External Email RE: Benton County Proposed Wind Farms The proposed Scout Wind Farm project would permanently block all future growth to the south of the Tri-Cities and yield no benefit for the Tri-Cities. Billions of dollars would be lost to Real Estate development. There are hundreds of geese and other wild birds that leave the river daily to feed in the Horse Heaven Hills area. They would be slaughtered by the Turbines. A guarantee must be made saying that the birds will not be harmed! Wind Turbines are poor power producers. European wind power cost has increased by a factor of 5, because of the turbine costs and the power needed to fill in the void. We have excellent and low cost Hydro-Power. We DO NOT NEED wind power! Life-time turbine costs would increase our electrical cost from this time forward. A total waste of our money! We should not be forced to pay for a company to burden us; so that they can make money from the subsidized power. We would get higher cost power and taxes to pay the subsidies. Turbines make noise, typically in low frequency for travelling sound. It could ruin our living conditions. The use of wind turbines will never reduce globle warming. We will never be able to measure any improvement from their use. Will the change of wind patterns change grape growing conditions? The visual change to the Tri-Cities would be damaging to our entire area, with lowered property values and limited growth potential. I believe that the State Government support for this project is simply, "It's the In Thing to do polictlically" regardless of the damage that it will do to the Tri-City Citizens. Solar Panels should be placed on existing building roof-tops; so as not to use virgin land. This whole project is a bad idea and would penalize the Tri-Cities and the State of Washington. Sincerely, Wallace G. Ruff and Margarete G. Fleming	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	Noise and vibration impacts are addressed in Seciton 4.11 of the EIS. Neither noise nor vibration are expected to cause impacts detrimental to human health.	4.11 (LFN)	Revise FEIS to directly address LFN.
			Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens Mark Morton	1115577	External Email Attached pdf with my comments named - 20230125 Morton Comments Mark Morton West Richland WA 509 727 2929	n/a	Please refer to Submission 1097189	Please refer to Submission 1097189	Please refer to Submission 1097189

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Lower Columbia Basin Audubon Society	1115585	External Email Attention: I have sent a copy by US Mail so this will be the same letter. It is attached to this email, but my system acts weird so you may not be able to open it. I have also copied and paste the document below I would prefer that you use the mailed copy since the electronic copies may not be as understandable. Thank you, Dana Carl Ward Lower Columbia Basin Audubon Society Conservation Chair 509-545-0627 --- January 26, 2023 EFSEC 621 Woodland Square Loop SE, Olympia, WA 98504-3172 Attention: Comments on the Horse Heaven Hills Draft Environmental Impact Statement by the Lower Columbia Basin Audubon Society General Comments: • The DEIS is long with many acronyms. An acronym table should be part of the document. A reader cannot clearly remember each acronym from page to page and from day to day. Most large DEIS have an acronym table where all acronyms used in the document are compiled. • The DEIS should contain, in one location, explanation of scientific terms used and their definitions. An example would be what a kilometer is or what is meant by the word flicker. • The DEIS lacks specificity of location of turbines. This makes a complete review impossible. • A commitment to utilize future technological advances to lessen bird strikes on turbines should be made in the DEIS. It is understood that worldwide studies are ongoing to resolve bird strikes. Some of these technologies, such as radar, lighting patterns, paint patterns could be retrofitted to lessen the bird strikes if found to be practicable. • An escrow account should be established for restoration of the multiple sites impacted by the project to assure complete and sustainable habitat recovery. Specific Comments: ES-2.2 Alternatives to the Proposed Action It is stated in the text that: "Several alternatives were considered for analysis but were eliminated from detailed evaluation in the draft EIS …" Comment: The reader is not enlightened as to what these alternatives would have been. It only states the no action alternative was considered. A complete DEIS should review in appropriate detail other alternatives to the proposed action. It appears that the reader must accept the applicant's word that appropriate alternatives were considered and rejected. ES-24 Wild-9 states: "Vegetation clearing and grubbing would avoid bird breeding periods, when feasible, to reduce potential destruction or disturbance of nesting birds." Comment: The applicant must follow the Federal Law titled; "Migratory Bird Treaty Act" There is no leeway to not follow this requirement. Work must stop if nesting birds or breeding activity is noted. The USFWS can allow a "take" with appropriate documentation and permit(s). Remove the words, "when feasible" from the text. Firm up the text with reference to the Migratory Treaty Act. ES-50 Table ES-3a Summary of Potential Impacts of Comprehensive Project during Construction of the Proposed Action Comment: (It would be best for the applicant to look at Table ES-3a to visually track what is said to follow this comment.) Follow the table to the heading, Section, drop down to Wildlife and Habitat, scroll right to under Topic where you find Barriers to Movement and Fragmentation, scroll right again to under Magnitude of Impact. The texts states "Low". This is not correct. The Lower Columbia Basin Audubon Society disagrees with the designation "Low". It should be "Medium or High". LCBAS considers this to be "High". Corridors and fragmentation are considered critically impacted by the project as stated by the WDFW in their April 1, 2021 letter to Ms Moon, EFSEC. Continuing left to right across the columns to Special Extent or Setting of Impact under this column it is stated, "Confined". The impact should be "Regional" due to its impact to movement from areas well outside the project area. Migratory birds move through this area in the nationally recognized Pacific Flyway. Mammals both small and large such as the Townsend's ground squirrels, a WDFW candidate species, and the recently reintroduced culturally sensitive prong horned antelope and resident deer populations use this migration corridor. Curtailing or stopping this migratory pathway could have disastrous consequences for these cited species and many others that could be listed here. See WDFW April 1, 2021 letter to Ms Moon. ES-55 Table ES-3a Summary of Potential Impacts of Comprehensive Project during Construction of the Proposed Action Comment: To be as succinct as possible and to maintain comment accuracy the applicant needs to look at the species of bird listed as Sagebrush Sparrow and Sage Thrasher. These birds are listed as "Low" under "Magnitude of Impact". LCBAS disagrees with this classification. These birds should be listed as "High" because of their vanishing numbers in Washington State. Audubon Washington's recent study titled, "Sagebrush Songbird Survey, 2015" found these species are in decline state wide. WDFW has also listed this species as in decline and has listed these species as a State Candidate Species in their revised listing of March 2022. Also note that these two species are listed under the heading, "Special Extent or Setting of Impact" as "Confined". This is not correct; they should be listed as "Regional". The impacts at the project site will have consequences for a species in decline both at the extensive Horse Heaven Hill Project and regionally for central Washington State as noted above by Audubon Sagebrush Songbird Survey and WDFW various letters to Ms Moon April, March 2021. ES-67 Table ES-3b Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action. Comment: To be succinct as possible look under the heading noted as "Topic" for "Barriers to Movement and Fragmentation" the applicant lists under "Magnitude of Impact" as "Medium". LCBAS disagrees and believe this should be elevated to "High". Also, change the word "Confined" to "Regional" under the heading "Special Extent or Setting of Impact". The applicant's Figure 3.6-2 on page 3-97 of the DEIS shows the important migration route. It cannot be stressed enough how important migratory routes are for the free flow of genetic material and the viability of individual species both avian and mammal. Reference April 1, 2021 Letter from WDFW to Ms Moon, EFSEC. ES-69 Table ES-3b Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action Comment: To be succinct, look at Ferruginous Hawk under the heading "Topic". Under the heading, "Spacial Extent or Setting of Impact" the bird is listed as "Confined" this should be changed to "Regional". The WDFW lists this bird as "State Endangered" which is the highest category of all species to be threatened with extinction. The loss of any individual could have dire consequences to the regional population of Ferruginous Hawks. The numbers of Ferruginous Hawks has been declining in recent years as noted in Cornell Lab of Ornithology, tabulation through ebird tracking for Washington State and the Pacific Northwest. Also the WDFW has noted this species as declining in recent surveys done out of the Pasco, WA Field Office. Contacts: J. Fadoria, M. Ritter, proprietary information on nesting, population trends and range. ES-71 Table ES-3b Summary of Potential Impacts of Comprehensive Project during Operation of the Proposed Action Comment: To be succinct, see Sagebrush Sparrow/Sage Thrasher under "Spacial Extent or Setting of Impact" should be listed as "Regional" rather than "Confined". These sagebrush obligates are a vanishing species in Washington State and are designated a State Candidate Species by WDFW which means the loss of habitat and development can severely impact these two species. The Audubon study titled, "Sagebrush Songbird Survey, 2015" found that these species were declining in Washington. ES-83 Table ES-3c Summary of Potential Impacts of Comprehensive Project during Decommissioning of the Proposed Action Comment: To be succinct, see under "Topic" Ferruginous Hawk under "Spacial Extent or Setting of Impact" should be "Regional" and not "Confined". The Ferruginous Hawk is listed as Endangered by the WDFW and it has regional consequences by the loss of any individual. Summary of comments for the Tables and pages sighted above. The Project should consider eliminating or moving turbines in migratory routes as depicted in Figure 3.6-2 of the full DEIS. The LCBAS would like to stress that the applicant has consistently lowered the impact to "low" or "confined" for Ferruginous Hawk, Sagebrush Sparrow, Sage Thrasher and wildlife habitat. We feel that these species and habitat, due to their continued decline in numbers and extent in Washington, needs to be upgraded to high and regional in the DEIS. Therefore the project needs to provide more robust protections and reissue an improved DEIS for review before the final EIS is written. The solar arrays need to be repositioned to minimize or eliminate impact to migratory routes. Any fencing needs to be repositioned to reduce impact movement. Fencing should be designed to be animal friendly. These are significant avoidable adverse impacts if project components are reduced in number such as turbine towers, relocation of towers and support facilities such as roads and powerlines. Habitat such as mature sagebrush steppe must be preserved and the project moved out of these areas. This would include wind turbine towers and all support facilities and portions of the three separate solar arrays. ES-91 Table ES-4a Summary of Potential Impact by Component during Construction of the Proposed Action General comment: This set of Tables illustrates multiple actions under the heading "Component". Since there are so many different components such as turbines, solar arrays and substations it is difficult, to analyze the impacts of each one through these tables. It is understood that this is a summary, but it defeats the process for a reasonably good review. The different components should be analyzed separately since they are located miles apart where impacts could be significantly different due to vegetation types, habitat and migratory routes.	Executive Summary	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Wildlife and Habitat	The purpose of Mitigation measure Hab-4 – Formation of a TAC was to require the development of a technical community to support EFSEC with reviewing and approving Project components and mitigation as the Project develops. The TAC would not have decision making authority but would be composed of a group of experts that are able to advise the Applicant and EFSEC on additional mitigation measures that may be required as additional information on wildlife presence and project design become available. WDFW was consulted through the development of the EIS. The proximity of infrastructure to draws and canyons was reviewed and captured in the development of mitigation measures (Hab-1 and Hab-2) requiring the Applicant to avoid modelled movement corridors, draws, and canyons. Adaptive management in the form of mitigation plans are required if avoidance is not feasible. Final infrastructure placement and mitigation plans would require approval by EFSEC prior to implementation. Mitigation measure Hab-2 will be updated in the FEIS to provide additional clarity as to the mitigation measures and follow up management required to reduce impacts to wildlife movement Habitat loss calculations provided in the EIS were developed based on input from WDFW including information on species core habitat provided by WDFW ferruginous hawk experts. Information on potential impacts to ferruginous hawk was obtained via a literature search and discussions with WDFW scientists with local expertise. While ferruginous hawks may return to old nest sites, several of the sites reported in PHS data have not been active for many years. The calculations provided in the dEIS are of expected habitat loss based on current conditions (e.g. current use) and not reduction in habitat capacity, which considers the impact to the landscape's ability to support future ferruginous hawk populations. While this was the approach used to calculate impacts, mitigation measures for ferruginous hawk (Spec-5) were developed using a conservative approach by requiring that the Applicant buffer nests documented as active and documented in PHS with the intention of preserving future landscape capacity. Mitigation measure Spec-5 requires that EFSEC approves any infrastructure within 2 miles of a ferruginous hawk nest. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Spec-5 requires that the applicant provide additional mitigation measures to reduce risk of collision (e.g. curtailment when nests are active, See Spec-5 1(b)) and habitat loss (e.g. offsetting, see Spec-5 1(c)). Flight behaviour does contribute to the risk of bird collision with turbines as some species are more maneuverable and better able to avoid collisions (micro avoidance) or avoid wind power project as they approach the area (macro avoidance). However, as noted in Adams et al (2017) data is not available for all species to adjust the species exposure index to account for avoidance of turbines (micro avoidance). Adams et al (2017) accounted for macro-avoidance (e.g avoiding the area where turbines are) in their calculation, which would result in reduced risk indices by reducing the likelihood of birds entering the wind project area. As this factor was not accounted for in the Horse Heaven calculation it may be more conservative. The adjacent Nine Canyon project was used as a surrogate to predict the rate of bird mortality at Horse Heaven based on its proximity to the Lease Boundary, similar habitat, and anticipated similar species diversity. It is acknowledged in the EIS that the total number of mortalities at Horse heaven would be larger given the size differences between the Projects. The EIS describes the resiliency of special status species to impacts, which includes mortality. For ferruginous hawk, the EIS notes that the species is declining in the baseline case and is not considered resilient to imposed stress. Resiliency was considered in assessing magnitude. Ferruginous hawk was assigned a magnitude of high because it is predicted that the project could result in impacts that could impact the regional population. The information provided will be reviewed and incorporated into the FEIS where appropriate.	4.6	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
		ES-101 Table ES-4a Summary of Potential Impact by Component during Construction of the Proposed Action Comment: The applicant should look at the referenced table for clarity of this comment. The first row states, "Wildlife and Habitat (Section 4.6)" and as you move to the right the reader see that "Barriers and fragmentation created during construction would predominantly remain through operation." Then it states, "Magnitude of Impact" is "Low" then to the right it states, "Likelihood of Impact" is "Probable". The "Magnitude of Impact" should be "High" if the "Likelihood of Impact" is "Probable". Wildlife and habitat will be severely impacted over the life of the operation. If there was no operation, there would be no impact to habitat for wildlife. Summary of comment: If the impact is probable the impact would be high. ES-104 Table ES-4a, ES-107 Table ES-4a, ES-121 Table ES-4b, ES-124 Table ES-4b, ES-147 Table ES-4c, ES-149 Table ES-4c, and ES-151 ES-4c. Comment: In an attempt to combine comments to avoid the tedium of repetitive statements the general statement will be made for each "Topic" while the "Component" will remain "Solar Array". For the "Topic" "Wildlife and Habitat" with "Barriers to Movement and Fragmentation" the spacial extent should be "Regional" and not "Confined". For the "Topic" "Ferruginous Hawk" the "Spacial Extent" should be "Regional" not "Confined". For the "Topic" "Sagebrush Sparrow and Sage Thrasher" the "Spacial Extent" should be "Regional" not "Confined". Summary of Comments for the above tables under the component solar. The applicant has repeatedly downgraded the "Spacial Extent" to "Confined". LCBAS from information gained from the Audubon Sagebrush Songbird Survey and the April 1, 2021 letter from WDFW to Ms Moon believes the "Spacial Extent" should be "Regional" not "Confined". 3-54 Table 3.5-2 Habitat Types and Subtypes in Each Siting Areas Comment: The Table shows that the East Solar Field will impact 1,024.9 acres of rabbit brush, shrub land and 50.9 acres of sagebrush-steppe. This is unacceptable due to the disappearing extent of these two habitat types in the state of Washington. The Nature Conservancy of Washington, Biodiversity Inventory and Analysis of the Hanford Site 1994-1999, has estimated that 70% of these two habitat types has disappeared within the state. This is particularly evident in the Horse Heaven Hills where it appears that more than 70% has been lost. The project should not construct facilities in these areas to preserve habitat for sagebrush obligate birds. 3-97 Figure 3.6-2 Wildlife Movement Corridors within the Project Lease Boundary and Project Footprint Comment: From this figure it is abundantly clear that a critical migratory route colored yellow and orange dissects the project area from north to south. This area should be free of turbines and the western section of the Eastern Solar Array should not be constructed here to maintain regional connectivity from habitat areas north and south as well as east and west of the project area. The WDFW in its letter to Ms Moon dated April 1, 2021 reviews the critical need for uninhibited connectivity for the survival of wildlife. 4-133 Mitigation Table 4.5-11: Habitat Offset Ratios Presented by the Applicant for Project Disturbance Habitat Type Habitat Class(a) Temporary Disturbance Offset Ratio Permanent Disturbance Offset Ratio Modified Habitat Offset Ratio Agricultural Land Class IV N/A N/A N/A Developed/Disturbed Class IV N/A N/A N/A Eastside (interior) Grassland (Eastside Steppe) Class III 0.1:1 1:1 0.5:1 Non-native Grassland Class III 0.1:1 1:1 0.5:1 Planted Grassland Class III 0.1:1 1:1 0.5:1 Dwarf Shrub-steppe Class II 1:1 2:1 2:1 Rabbitbrush Shrubland Class II 0.5:1 2:1 0.5:1 Sagebrush Shrub[1]steppe Class II 0.5:1 2:1 2:1 Source: Tetra Tech 2022 Note: (a) Based on WDFW (2009) habitat classification for mitigation and the Class assigned to habitat types in Tetra Tech (2022). N/A = not applicable Comment: The table above, which did not copy well, reviews the recommended Habitat Offset Ratios for various plant classifications. Please follow this logic line: The Lower Columbia Basin Audubon Society with concurrence of Audubon Washington and National Audubon has designated the Hanford Reach National Monument and Central Hanford as an Important Bird Area (IBA). The area designed an IBA is owned by the US Department of Energy. The biological resources on the 586 square mile IBA is managed under the Hanford Site Biological Resources Management Plan (BRMP) (DOE/RL-96-32 Revision 2, Published February 2017). This plan was written and reviewed by government agencies and non-government organizations. The Offset Ratios provided in the Hanford document are more robust than those based on the WDFW and are supported by LCBAS. These ratios have set the standard for this region which the Horse Heaven Hills are located within. Page ix of the management plan states that any area greater than .5 acres should be mitigated at the following ratio: Level 2 mitigation at 1 to 1 Level 3 mitigation at 3 to 1 Level .4 mitigation at 5 to 1 Level 4 of the BRMP is denoted as high quality mature shrub-steppe. LCBAS supports this ratio and firmly request that the Final EIS use these ratios to offset any damage to sagebrush habitat. 3-91 Figure 4.2.4-1 Map 1 of 4, Comment: Note the error on the key to the map. The key shows that the Hanford Reservation is DOD, Department of Defense property. This is incorrect. The Hanford Reservation is under ownership and management by the Department of Energy, DOE. (Historically the site was owned by the DOD but that was more than 50 years ago.) 3-92 Figure 4.2.4-1 Map 2 of 4, Comment: See note for page 3-91. DOD for the Hanford Reservation should be changed to DOE. Thank you for the opportunity to comment on the Horse Heaven Hills Project DEIS. The seriousness of climate change and resulting impact to human life, the environment and the welfare of the earth relies on intelligent actions to limit emissions from fossil fuels and other sources such as cattle and methane. The construction of solar arrays and wind turbines are important steps to slow or reverse global warming. The Lower Columbia Basin Audubon Society is not against solar or wind turbines but they must be sighted responsibly and must take into account the habitat and biological resources that would be impacted. It is expected that the comments above will help the applicant to better understand, appreciate and recognize what impacts their actions will have on the human and biological environment. The applicant must correct the weaknesses presented and adjust the project accordingly for least impact. This might entail moving the solar array out of shrub-steppe habitat or limiting the number, height or location of wind turbines to protect resources. Sincerely, Dana Carl Ward Conservation Chair Lower Columbia Basin Audubon P.O. Box 1900 Richland, Washington 99352 509-545-0627	Vegetation	The Hanford Site Biological Resources Management Plan (DOE 2017) was prepared for the Hanford Site Boundary and is applicable to lands within this area. The Hanford Site Boundary is located north of the Project Lease Boundary and includes the Hanford Reach National Monument and central Hanford that are managed by Department of Energy (DOE). The purpose of the Hanford Site Biological Resources Management Plan is to provide a consistent approach to managing the site's natural resources and DOE is responsible for applying the Management Plan within portions of the Hanford Site managed by DOE. As the Project Lease Boundary is not within the jurisdiction of DOE, nor within the Hanford Site, this management plan does not apply. The offset ratios within the EIS are based on offset ratios provided in the Wind Power Guidelines (WDFW 2009) and based on consultation among WDFW, the Applicant, and EFSEC, where offset ratios for the various habitat types within the Project area were agreed upon. This included an greater offset ratio applied to rabbitbrush shrubland where permanent and temporary disturbance occurs, recognizing that this habitat type is an early seral shrub-steppe ecosystem. This is consistent with the application of habitat offset ratios applied to similar combined wind and solar projects in the area.	Section 4.4.3	n/a
joan.owens	1115586	External Email We are very much against the placement of these windmills in Badger Canyon! Mike & Karen Mellison Sent from my iPhone	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1115587	External Email Dear Director Sonia Bumpus, I am writing to ask that the Final EIS for Horse Heaven Hills Wind Project in Benton County take a stronger and more specific look at how the project can be designed to avoid impacts to the environment. I support Washington's 100% clean energy target to combat the climate crisis. Audubon's science suggests that we may lose 389 species of N. American birds if warming climbs to 3 degrees Celsius above pre-industrial levels. We are also in a biodiversity crisis. Conservation and clean energy must go hand in hand. The Horse Heaven Hills Wind Project will be the largest renewable energy project in our state's history. As currently proposed, the project may cause unacceptable harm to state-listed Ferruginous Hawk and create barriers for landscape connectivity for shrub-steppe wildlife across a 113-square mile area. But the project could be considerably improved with more clarity on conservation measures and an alternative design. The final EIS must include the following information and analysis to uphold our state's commitment to, and appreciation for, our wildlife and the connected landscapes they need. The final EIS must: - Identify specific design features, mitigation measures and associated performance standards that will avoid adverse impacts related to wildlife movement and habitat connectivity within the Project Lease Boundary and at the regional level. - Commit to how the proposed Project will avoid significant impacts to the Ferruginous Hawk population at the regional level by avoiding turbines within two miles of all documented nests and mitigating for direct and indirect loss of core and range habitat for all nests within six miles of the project. - Include an alternative for analysis that features an explicit design for and commitment to turbine siting and other project components that minimizes impacts to the state-listed species and wildlife connectivity. - Use the best available science to evaluate the magnitude and scale of impacts to birds due to turbine operation. The build-out of renewable energy in Washington can be achieved in a way that honors the legal and sovereign rights of Treaty Tribes and balances the needs of both people and wildlife. We look to this Council and its staff to provide the leadership needed to achieve this vision. Sincerely, Mrs Helma Welles 1059 NE 92nd St Seattle, WA 98115-2835 helmawelles@gmail.com	Wildlife and Habitat	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]], curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	4.6	Mitigation Measures HAB-1 will be updated to require any Corridor Mitigation Plan to include performance standards and measurements. Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.
joan.owens	1116720	External Email Dear Director Sonia Bumpus, Birds are threatened; that's heart-breaking to birders like me. Please assess this project (and all projects) to minimize harm to birds and their habitats. Sincerely, Ms. Jean M. Avery 13314 SE 19th St Apt T4 Vancouver, WA 98683-6595 JeanMAvery@gmail.com	Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
joan.owens	1117215	External Email Dear Director Sonia Bumpus, I am writing to ask that the Final EIS for Horse Heaven Hills Wind Project in Benton County take a stronger and more specific look at how the project can be designed to avoid impacts to the environment. I support Washington's 100% clean energy target to combat the climate crisis. Audubon's science suggests that we may lose 389 species of N. American birds if warming climbs to 3 degrees Celsius above pre-industrial levels. We are also in a biodiversity crisis. Conservation and clean energy must go hand in hand. The build-out of renewable energy in Washington can be achieved in a way that honors the legal and sovereign rights of Treaty Tribes and balances the needs of both people and wildlife. We look to this Council and its staff to provide the leadership needed to achieve this vision. Sincerely, MS Joyce Weir HERBS Dr Newport, WA 99156 jaweir@povn.com	Wildlife and Habitat	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]], curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	4.6	Mitigation Measures HAB-1 will be updated to require any Corridor Mitigation Plan to include performance standards and measurements. Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1117389	External Email My name is Cheryl Sutherland. My grandfather, A. A. Edwards, homesteaded in the Horse Heaven Hills in 1904 and the property is still being farmed today by family members. I am a participating landowner in the Horse Heaven Clean Energy Center and support the proposal for many reasons including positive economic impacts of jobs and increased tax revenue for the county. It makes sense to proactively develop new sources of renewable energy - the wind will always be beneath our wings so let's put it to productive use. The project will allow us, as dry land farmers, to put to use a constant, the wind, and not be solely at the mercy of fluctuating elements such as the weather; and will help to diversify our farm's revenue stream and help keep this land in our family for posterity. Please approve this project so that the benefits it provides can be enjoyed by the local community. Sincerely, Cheryl Sutherland, Personal Representative Estate of Geraldine O. Edwards 4105 Justin Way Sacramento, CA 95826	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
WDFW - Michael Ritter Lead Planner: Solar and Wind Energy Development	1117635	January 31, 2022 Amy Moon Washington Energy Facility Site Evaluation Council 621 Woodland Square Loop SE PO Box 43172 Olympia, WA 98504-3172 Subject: Draft Environmental Impact State: Horse Heaven Hills Wind/Solar/Battery Storage Ms. Moon, The Washington Department of Fish and Wildlife (WDFW) is committed to working with EFSEC and renewable energy projects to ensure that these projects are sited in a manner that avoid impacts on fish and wildlife resources and that fully support Governor Inslee's goals for decarbonization in Washington State. Over the last two years since the Application for Site Certification (ASC), WDFW has participated in meetings with EFSEC that frequently included the applicant. We have provided defensible biological information regarding conservation areas, avoidance areas (specifically for Ferruginous Hawks) (FEHA), avoidance and minimization to WDFW Priority Species and Habitats (PHS), and mitigation concepts and sites. We did this with the understanding that some of this information might aid the project in designing a layout (i.e. alternative build options) that would avoid and minimize impacts to PHS. Unfortunately, the layout in the Draft EIS is identical to that in the ASC along with the ambiguity of turbine types and number and total solar development areas. We identified significant PHS issues in our original comment letter and even recommended an alternate project layout of only solar on the agriculture lands in the southwest of the lease area and beyond to preserve the ridgeline, associated corridors, and avoid/minimize adverse impacts to PHS. Specifically, we stated, "to reduce the landscape-scale impact of the HWSB and reduce impacts to connectivity, we recommend that the project focus on solar development only on agricultural and grasslands in the southern edge of the HWSB lease area and to the southwest. This includes transmission corridors and all supporting infrastructure." Based on this we do not agree on how the Solar Only Alternative was presented as being limited to 10K acres--areas that the project designated--and subsequently eliminated in the Draft EIS when in fact there is 72K acres under project control. Similarly, we do not agree on how the Wind Only Alternative was presented as being limited to only the existing 11k micro-siting corridor of a 72K acre project area. We appreciate that some of the information we shared in our meetings, specifically related to avoiding development within FEHA core areas (r = 2 miles around a nest site/territory), has been incorporated into the Draft EIS. In our meetings we recommended that all nest territories identified in PHS be under this protection and the Draft EIS supports this stating "specifically, mitigation measures for ferruginous hawks would require avoiding siting Project components within 2 miles of ferruginous hawk nests documented in PHS data…" However, the Draft EIS goes on to say that, "the extent to which ferruginous hawk mitigation may be implemented will be informed by the final Project layout and field data on ferruginous hawk presence and habitat use of the Lease Boundary collected through pre-construction monitoring programs." If this is referencing the active FEHA nest data (n = 2) collected by the project from 2017-2019, we shared with you in January 2022 that, "WDFW considers the relevance of all historical FEHA nest (territory) locations (n = 16) as relevant for management to provide known historical habitat for recovery and to meet recovery goals." Then in February 2022, we shared with EFSEC that, "…there are 4 FEHA core area exclusion zones -from West to East - Webber, Badger, Sheep, and the eastern one, which is in the area of the Coyote Canyon FEHA nesting territory. Based on research, these core areas are where FEHA use is the highest but does not include the entire home ranges, so FEHA will still be exposed to turbines outside of these areas. Additionally, there are two turbines to the north just outside of the Webber exclusion zone that we also discussed with you that should also be excluded." Additionally, we pointed out that two FEHA nesting territories (Beck Road and 4-mile) are both within the eastern solar development area just to the east of Highway 395. Also in February 2022, we met with EFSEC and the applicant and provided the figure below and justification for recommending the central blue polygon as mitigation, offered ideas for project infrastructure and operations and vegetation management within the mitigation area, and identified turbine exclusion zones within the red FEHA circles. Hot Pink = project area; Green Diamonds = 244 wind turbines, Orange = solar; Yellow Diamonds = Historic (and active n = 2) FEHA nests that represent 16 territories; Red Circles = an example of active nest core areas (r = 2 miles); White = habitat mitigation proposed by project; Blue = Landscape mitigation options proposed by WDFW; Dark green = Arid Lands Initiative (ALI) priority core areas; Light green = ALI priority linkages; Brown route = least cost pathway for mule deer; Green route = least cost pathway ground squirrels; Grayish/green polygons = ground squirrel habitat concentration areas. And finally, in a May 2022 correspondence to EFSEC, "…we have the information we need to determine if the FEHA population within the Horse Heaven Hills could potentially be impacted by the project. We have made this determination based on best available science and information from the Periodic Status Review (Hayes and Watson 2021) that recommended and resulted in this bird species being listed as a State of Washington Endangered Species. Our assessment is based on core nesting habitat areas (r = 3.2km) of both active and unoccupied nests and the 244-turbine layout. By using the smaller core nesting area, and not the home range area (r = 10km), we have already provided a meaningful compromise for renewable energy development and for the conservation of FEHA within and adjacent to the project. Within these smaller core areas, we have recommended the project consider no development of wind turbines and/or curtailment based on seasonal timing, ongoing avian monitoring and field observations, or using Identiflight-type technology. At this time, we are most interested in examining how the fewer (but larger) layout of 150 turbines and alternate turbine siting could further avoid and minimize potential impacts to FEHA and provide conservation of FEHA core nesting areas." Comprehensively regarding FEHA, we do not agree with the DEIS that impacts to this Washington State Endangered Species would be "Limited", "Confined", and "Local" as described in Chapter 4. The information in the Periodic Status Review (Hayes and Watson 2021) that the FEHA breeding population in WA State is in a sustained decline and that "…the percentage of surveyed nesting territories supporting breeding pairs has significantly declined in the core breeding range of the species in Benton and Franklin counties…" provides justification to list any impact to FEHA from direct and indirect causes as "Regional." We do not support the establishment of a Technical Advisory Committees (TAC) as a mitigation component to initially review and provide input to pre-construction surveys and project layout. In our opinion, the project needs to provide additional reasonable alternatives based on information they have already received. TAC are typically formed to review, monitor, and make recommendations regarding post-construction project operations related to bird/bat monitoring, revegetation, noxious weed control, etc. Issues, for example, such as project feasibility, siting and layout, avoidance, minimization, and to some extent a mitigation framework should be determined through a public process that results is more than just a single Build Alternative proposed by the applicant. If the project were built with 244 turbines and three solar areas and all supporting infrastructure, then we would agree that the Zone of Influence (ZOI) analysis and conclusion that the project will result in over 53K of indirect habitat loss created by disturbances. This is in combination with the almost 7k of direct habitat loss results in 83% of the 72k project area. Most of these impacts are to agricultural lands around which are isolated native habitats that together form a mosaic of habitats that provided wildlife connectivity, foraging areas, and den and nest sites. As we stated in our original comment letter, the sheer size of this project, and the impacts to WDFW PHS and connectivity corridors will be difficult if not impossible to mitigate. Knowing this, we have worked with EFSEC and the applicant to provide reasonable solutions to avoid, minimize, and mitigate that supports both conservation and renewable energy, but little of our input was used in the DEIS and none was considered for alternate project layouts. In closing, WDFW recommends that the Draft EIS be re-issued after first considering the comments received from WDFW and others on this project and work with the applicant to develop reasonable alternatives for analysis and consideration. Please contact me at 509-380-3028 or at Michael.Ritter@dfw.wa.gov with any questions. Sincerely, Michael Ritter Lead Planner: Solar and Wind Energy Development	Vegetation	Offset ratios for habitat including priority habitats presented in the EIS are consistent with the recommendations provided by WDFW and the Wind and Power Guidelines. The offset ratios for temporary and permanent disturbance were agreed on through discussions among EFSEC, WDFW, and the Applicant. This included the Applicant voluntarily offsetting rabbitbrush at temporary and permanent offset ratios usually applied to shrub-steppe recognizing that this is an early seral shrub-steppe community. The acres of temporary and permanent disturbance are calculated based on the Project components footprint and the associated habitat impacted. The EIS considers the impact from each Project component individually and for the comprehensive Project for the impacts to vegetation. Ratings are provided in Section 4.2.2.8. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5, 5.2.2	n/a
			Wildlife and Habitat	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]], curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	4.6	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1117638	EFSEC Council, My name is Jessica Wadsworth and I'm a resident of the City of Benton City I am also a city council member. I believe the Horse Heaven wind project will be very beneficial to our community. This project would not only bring local hire family wages construction jobs but the money from these jobs would be spent local throughout our community. The Total economic output of approximately $73 million to $85 million this is life changing for the construction workers. This project would generate almost $20 million in revenues during the first full year of operation and $260 million over the 35 year operating life of the project. These fees will be paid to Benton county and under current allocation, the largest proportion of those funds would support local schools. Growing up in a farming community I understand what the farmers have to go through and this is a great opportunity for them to continue growing crops while generating supplemental revenue from the turbines. I stand with our local framers who have made the decision to be part of the Renewable energy sector. We also need to keep in mind that this land does not belong to us. As a council member I believe we need to be part of the renewable energy sector. As a county we need to embrace all kinds of renewable energy resources. Thank you, Jessica Wadsworth	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117650	There should be another public comment hearing, I didn't get to comment. I called you to get scheduled at this hearing but no one called me back. I feel this windmill farm solar panel project is a very bad idea and should not be allowed to happen. Vince Shawver West Richland vince.shawver@gmail.com	General - Question for EFSEC	Comment acknowledged. EFSEC requested that speakers to sign up ahead of the meeting. Anyone wishing to speak during the public meeting should have notified EFSEC by phone at (360) 664-1345 or email at efsec@efsec.wa.gov before 5:00 pm on February 1, 2023.	n/a	n/a
joan.owens	1117653	External Email Dear Director Sonia Bumpus, I am writing to ask that the Final EIS for Horse Heaven Hills Wind Project in Benton County take a stronger and more specific look at how the project can be designed to avoid impacts to the environment. This problem of ignoring birds and wildlife has been a negative for wind projects since before the first windfarms were erected in Kittitas County more than a dozen years ago. Certainly the industry can find a solution to deterring birds on these vast landscapes where valuable and disappearing sage-steppe is destroyed in the process of erecting wind towers. Improve the project by considering what is being erased! The Horse Heaven Hills Wind Project will be the largest renewable energy project in our state's history. The final EIS must include the following information and analysis to uphold our state's commitment to, and appreciation for, our wildlife and the connected landscapes they need. - Identify specific design features, mitigation measures and associated performance standards that will avoid adverse impacts related to wildlife movement and habitat connectivity within the Project Lease Boundary and at the regional level. - Commit to how the proposed Project will avoid significant impacts to the Ferruginous Hawk population at the regional level by avoiding turbines within two miles of all documented nests and mitigating for direct and indirect loss of core and range habitat for all nests within six miles of the project. - Include an alternative for analysis that features an explicit design for and commitment to turbine siting and other project components that minimizes impacts to the state-listed species and wildlife connectivity. - Use the best available science to evaluate the magnitude and scale of impacts to birds due to turbine operation. We look to this Council and its staff to provide the leadership needed to achieve this vision. Sincerely, Gloria Baldi 803 S Willow St Apt 1401 Ellensburg, WA 98926-4123 gloriabaldi55@gmail.com	Wildlife and Habitat	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]), curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	4.6	Mitigation Measures HAB-1 will be updated to require any Corridor Mitigation Plan to include performance standards and measurements. Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Sarah Reyneveld, Counsel for the Environment	1117655	February 1, 2023 Sonia Bumpus, EFSEC Manager Energy Facility Site Evaluation Council PO Box 43172 Olympia, WA 98504-3172 RE: Horse Heaven Wind Farm LLC - EFSEC Docket No. EF-210011 Dear Manager Bumpus: As Counsel for the Environment (CfE), I appreciate this opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Horse Heaven Wind Farm. The CfE has an independent statutory created role to represent the public interest in protecting the quality of the environment. RCW 80.50.080. The sitting of energy facilities in Washington State requires the Energy Facility Site Evaluation Council (EFSEC) to "recognize the pressing need for increased energy facilities." RCW 80.50.010. The Council must also ensure that the operation of such facilities "produce minimal adverse effects on the environment, ecology of the land and its wildlife, and the ecology of state waters and their aquatic life." Id. CfE submits this comment to help ensure that the Final Environmental Impact Statement (FEIS) will protect the public's broad interest in preserving the environment and produce minimal adverse effects. As the DEIS accurately concludes, the Horse Heaven Wind Farm (Project) will have a unique and significant impact on the vegetation, wildlife, habitat and cultural resources of the Horse Heaven Hills. The DEIS identifies "loss of priority habitat, wildlife mortality, and creation of barriers to movement and habitat fragmentation" as potential impacts of the Project.1 Generally, the DEIS comprehensively analyzes the Project's adverse impacts to this unique habitat and species, addresses mitigation measures, and unavoidable impacts. RCW 43.21C.031, Adams v. Thurston County, 70 Wn.App. 471, 855 P.2d 284 (1993). CfE appreciates that EFSEC has identified mitigation measures, in addition to those proposed by the Applicant, to reduce impacts on vegetation, wildlife, and habitat. The DEIS proposes project-specific impacts on priority species such as the ferruginous hawks, including, but not limited to the exclusion of turbines within core habitat, curtailing turbine operation when ferruginous hawks are present, and avoiding siting project components within two miles of ferruginous hawks nests.2 CfE further appreciates that the DEIS recommends measures to avoid sensitive features and habitat specific 1 See EFSEC, Horse Heaven Wind Energy Farm Draft Environmental Impact Assessment (DEIS), (Dec., 2022), Executive Summary (ES) at 12. 2 See id. at 12-13. ATTORNEY GENERAL OF WASHINGTON Sonia Bumpus, EFSEC Manager February 1, 2023 Page 2 management plans, develop wildlife and habitat specific management plans, and conduct additional preconstruction and post operation monitoring by a Technical Advisory Committee to review and provide input to pre-construction surveys, post-operation monitoring, and implementation of mitigation measures. 3 CfE recommends that the FEIS include a statement of need for the Project and how the Project would relate to Washington's broader statewide energy mandates. The FEIS should also more accurately quantify and represent the estimated total bird and bat mortality resulting from the life of the Project, consider the Project's cumulative impacts on bats, and recommend the applicant consider additional mitigation measures to reduce bat mortality. The FEIS should provide a clear rationale for siting the East Solar Field in priority habitats, consider alternatives to avoid direct habitat loss and fragmentation, and recommend removing additional barriers to wildlife movement. Additionally, the FEIS should consider and analyze alternatives to the action and no-action alternative presented and fully consider the environmental impacts of the proposed alternatives on greenhouse gas emissions as part of Washington's broader statewide energy mandates. Finally, CfE wants to ensure that EFSEC continues to engage with affected tribes to avoid and mitigate impacts to cultural resources. 1. The FEIS Should Include A Statement of Need for the Project The DEIS includes a purpose for the Project, but does not include a statement of need. The DEIS should briefly describe the Project's objectives, specifying the purpose and need to which the proposal is responding. WAC 197-11-440(4). It seems clear that the Project is responding to the "pressing need for increased energy facilities" to meet Washington's statewide Clean Energy Transformation Act, RCW 19.405 (2019), and Climate Commitment Act, RCW 70a.65 (2021) goals. RCW 80.50.010. But the DEIS is silent on the need, and how it would relate to Washington's broader statewide energy mandates. The FEIS would benefit from a clear description of the Project need and how the Project would meet that need. 2. The FEIS Should Accurately Quantify and Represent the Estimated Total Bird and Bat Mortality Resulting from the Life of the Project The DEIS does not create a complete or accurate estimate of bird and bat mortality resulting from the Project. First, the bird mortality rates presented in the DEIS need to be reconciled and more accurately quantified. The DEIS states that the Project may result "in a bird fatality rate similar to that of the nearby Nine Canyon Wind Energy Project" of 2.6 bird fatalities per megawatt (MW) per year.4 It also cites the Horse Heaven wind farm application which states that 22 bird fatalities were reported from the Nine Canyon Wind Project over a 16-year reporting period.5 However, the Nine Canyon Wind Project is a 95.9 MW project.6 Therefore, based on the 3See id. at 23 4 DEIS at 4-156. 5 Id. 6 Energy Northwest, Nine Canyon Wind Project (2023), https://www.energy-northwest.com/energyprojects/nine-canyon/Pages/default.aspx. ATTORNEY GENERAL OF WASHINGTON Sonia Bumpus, EFSEC Manager February 1, 2023 Page 3 estimate of a 2.6 bird fatality rate per megawatt the resulting project's annual fatality rate would appear to be 249 birds per year—significantly higher than the DEIS estimates. 7 The FEIS should address these discrepancies and more accurately quantify the annual bird fatality rate. Second, when the annual estimate is clarified the FEIS should more clearly represent the total bird mortality impact of the Project. While estimating bird mortality as a rate based on a nameplate generating potential is standard industry practice,8 it does not create a complete picture of the estimated bird mortality resulting from the life of the Project. Assuming estimated bird fatalities from the Project are 249 birds per year that could result in estimated fatalities in the range of 8,715 birds for the life of the Project up to 35 years and beyond.9 This estimate is sufficiently greater than the estimate of 2.6 birds per megawatt per year portrayed in the DEIS and should be clarified in the FEIS. The DEIS should also clarify and reconcile estimates relating to bat mortality rates. Accurate estimates of bat mortalities are particularly critical for the hoary and silver-haired bat as both are classified as species of greatest conservation need under the Washington State Wildlife Action Plan.10 Accurately estimating fatalities resulting from the Project's impacts on hoary bats is also important because they are predicted to experience severe declines in the next 50 years due to wind energy.11 Similar to the projected mortality rate for birds, the DEIS cites one source of Nine Canyon Wind Project data which estimates 2.47 fatalities for hoary and silver-haired bats per MW per year.12 The DEIS then cites a different study at the Nine Canyon Wind Project which documents 27 bat fatalities of the silver-haired bat and hoary bat and estimated fatalities of 3.21 bats per turbine per year.13 Recognizing that the population sizes of hoary and silver-haired bats is poorly understood,14 it is still critical to reconcile this data and to the extent possible accurately estimate the Project's impact on bat fatalities. Finally, similar to birds, the 7 See Id. According to Energy Northwest 2023 the Nine Canyon Wild Project is a 95.9 MW project. Assuming this is correct, the annual fatality rate would be 2.6 birds/MW/yr × 95.9MW = 249 birds/yr. 8 USFWS (U.S. Fish and Wildlife Service), Land-Based Wind Energy Guidelines (2012), https://www.fws.gov/sites/default/files/documents/land-based-wind-energy-guidelines.pdf, at 37-38. 9 DEIS at 2-20. "The Project is anticipated to have an operating life of up to 35 years, which may be extended by repowering." Assuming a 35 year life of the project= 249 x 35 = 8,715 bird fatalities 10 See WDFW, Washington's State Wildlife Action Plan: 2015 Update (2015), https://wdfw.wa.gov/sites/default/files/publications/01742/wdfw01742.pdf; see also Scout Clean Energy, Application for Site Certification Horse Heaven Wind Energy Farm (Feb, 8, 2021) at Appendix K. 11 See generally Bat Conservation International, Hoary Bat (2023) https://www.batcon.org/bat/lasiurus-cinereus/ (last accessed January 29, 2023); N.A. Friedenberg, et al., Assessing fatality minimization for hoary bats amid continued wind energy development, (2021), https://www.sciencedirect.com/science/article/pii/S0006320716310485 (Friedenberg); See also W. F., E. F Frick, et al. Fatalities at wind turbines may threaten population viability of a migratory bat, (May 2017), https://www.sciencedirect.com/science/article/pii/S0006320716310485. 12 DEIS at 4-157. 13 DEIS at 5-185. 14 Friedenberg, Assessing fatality minimization for hoary bats amid continued wind energy development, supra n 11. ATTORNEY GENERAL OF WASHINGTON Sonia Bumpus, EFSEC Manager February 1, 2023 Page 4 FEIS should rely on the most up to date data to estimate bat mortality resulting from the life of the Project to provide a more complete picture of Project impacts. 3. The FEIS Should Recommend the Applicant Consider Additional Mitigation Measures to Reduce Bat Mortality Silver-haired bats and hoary bats represent the majority of bat mortality at wind farms in Washington. Bat surveys at the Project suggest temporal and spatial features important to potentially mitigate impacts to silver-haired and hoary bats.15 First, bat use of the area is not consistent across the landscape and some turbines are likely to be located in areas of greater bat activity. Therefore, bat mortality could be higher at specific turbines or areas of the Project. Second, bat use of the Project area peaks in the Spring and Fall likely associated with migration. The applicant has reported little or no suitable roost or shelter sites in the Project area. CfE appreciates that EFSEC is recommending that upon completion of a "two year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigating measures are necessary."16 But the DEIS does not recommend mitigation measures that would be triggered in the event of high rates of bat fatality. CfE recommends the FEIS consider adopting additional mitigation measures, including, but not limited to adaptive management plans and curtailment of the turbines associated with high mortality rates potentially during Spring and Fall migration periods.17 4. The FEIS Should Fully Assess the Project's Cumulative Impacts on Bats The DEIS considers and discusses the cumulative impacts of the Project with the existing and reasonably foreseeable developments.18 As part of this cumulative impacts analysis, the DEIS assesses the cumulative impacts of the Project on wildlife, including, but not limited to impacts on the pronghorn antelope, ferruginous hawk, birds, and bats. The DEIS concludes that mortality of these "species associated with the Project is expected to occur cumulatively with the mortality associated with other regionally occurring projects, particularly other wind power projects such as the Nine Canyon and Stateline Wind Projects."19 But migratory species such as birds and bats that are exposed to mortality risks from the Project are drawn from metapopulations that likely 15 HHWF (Horse Heaven Wind Farm, LLC). Horse Heaven Wind Farm, Washington Energy Facility Site Evaluation Council, Application for Site Certification (2020) Appendix M: Bird and Bat Conservation Strategy. December. 16 DEIS 4-193.	Wildlife and Habitat	See Response to Comment 1110773	4.6	n/a
			Vegetation	Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	Section 4.5	n/a
			Chapter 1 - Project Background	In accordance with RCW 80.50.010, it is the policy of the state of Washington to recognize the pressing need for increased energy facilities, and to ensure, through available and reasonable methods, that the location and operation of all energy facilities and certain clean energy product manufacturing facilities produce minimal adverse effects on the welfare of the population and environment; including ecology of the land and its wildlife and the ecology of state waters and their aquatic life.	Section 1.3	Update Purpose and Need
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a

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		17 See generally J., L., Rydell, Bat mortality at wind turbines in northwestern Europe. Acta Chiropterologica (2010), https://doi.org/10.3161/150811010X537846; See also American Wind Wildlife Institute, Bats and Wind Energy: Impacts, Mitigation, and Tradeoffs. American Wind Wildlife Institute White Paper (2018), www.awwi.org/resources/bat-white-paper/; see also American Wind Wildlife Institute, Wind Turbine Interactions with Wildlife and Their Habitats: A Summary of Research Results and Priority Questions. (2019) www.awwi.org, https://rewi.org/wp-content/uploads/2019/05/Wind-Wildlife-Impacts-Summary-2019.pdf. 18 DEIS at 5-7-8. 19 DEIS at 5-14. ATTORNEY GENERAL OF WASHINGTON Sonia Bumpus, EFSEC Manager February 1, 2023 Page 5 reflect the distribution of species occupying a larger geographic region. Consequently, it is unknown whether the birds and bats impacted by the Project site are from a population whose breeding location is proximate and confined to a limited geography, or possibly a more random selection of the metapopulation representing a broader geographic distribution. We know that population size is a critical data gap to determining the population viability of most bat species, especially tree bats like hoary and silver-haired bats.20 The FEIS should reassess the cumulative impacts of the Project by evaluating the impacts to migratory species on a larger geographic scale, particularly silver-haired and hoary bats.21 This analysis should take into account issues with the viability of bat populations and their lack of resilience due to low reproduction rates. 5. The FEIS Should Adequately Analyze Alternatives to the Action and No-Action Alternative The DEIS is required to include a detailed discussion of alternatives to the proposed action. RCW 43.21C.030(c)(iii). King County v. Cent. Puget Sound Bd., 138 Wn.2d 161 (1999). That includes "actions that could feasibly attain or approximate a proposal's objectives, but at a lower environmental cost or decreased level of environmental degradation." WAC 197–11–440(5)(b). If the action is for "a private project on a specific site," the agency only is required to consider a no-action alternative and onsite alternatives (i.e., building the project with mitigation measures). See Weyerhaeuser v. Pierce County, 124 Wn.2d 26, 38 (1994); WAC 197-11-440(5)(d). Here, the DEIS only considers the applicant's proposal with recommended mitigation measures, and a no-action alternative, but fails to consider any onsite alternatives to the Applicant's proposal. The DEIS explains that "several alternatives were considered for analysis, but were eliminated from detailed evaluation in the DEIS because they would not generate the designed nameplate capacity required by the Applicant."22 However, the DEIS fails to provide any analysis of the alternatives that were eliminated and why they could not feasibly attain or approximate the proposal's nameplate generating capacity. The FEIS should address this deficiency by considering a less environmentally impactful alternative that includes alternative project layouts such as those proposed by the Washington State Department of Fish and Wildlife (WDFW).23 This should include consideration of an alternative that does not site the East Solar Field located in a highly concentrated priority habitat to avoid direct habitat loss and fragmentation. 20 Friedenberg, Assessing fatality minimization for hoary bats amid continued wind energy development, supra n. 11, at 10-11. 21 Id. 22 ES-6. 23 WDFW, Agency Comment #0004 (April 1, 2021), https://www.efsec.wa.gov/sites/default/files/210011/00024/A0004_WDFW_Rvw3.pdf. ATTORNEY GENERAL OF WASHINGTON Sonia Bumpus, EFSEC Manager February 1, 2023 Page 6 6. The FEIS Should Provide a Clear Rationale for Siting the East Solar Field in Priority Habitats, and Consider Alternatives to Avoid Direct Habitat Loss and Fragmentation Most of the Project's impacts to priority habitats are within the micrositing corridor and East Solar field. These impacts manifest themselves through direct habitat loss and fragmentation. The DEIS concludes that impacts to priority habitat include the permanent disturbance of 72.5 acres of Eastside (Interior) grassland and temporary disturbance of 16.2 acres; permanent disturbance of 1.1 acres of dwarf shrub-steppe and temporary disturbance of 8.9 acres; permanent disturbance of 1.4 acres of sagebrush shrub-steppe and temporary disturbance of 31.4 acres; and permanent disturbance of 717.2 acres of rabbitbrush shrubland and temporary disturbance of 152.3 acres.24 CfE appreciates that EFSEC has proposed additional mitigation measures to priority habitat in these regions, including an as-built report and calculation of offsets based on final temporary, permanent, and modified habitat impacts.25 But the DEIS does not address why the East Solar Field has to be located in this highly concentrated priority habitat area in the first place. Additionally, the DEIS suggests that the "applicant has also proposed three different solar facility locations, though all three may not be constructed."26 Considering this, the FEIS should provide a rationale for the location of the East Solar Field, and consider an alternative such as the one recommended by WDFW that avoids development in the East Solar field and focuses solar development only on agriculture and grasslands in the Southern edge of the lease area and to the Southwest.27 The FEIS should only recommend constructing the East Solar Field after a complete evaluation of alternatives and whether impacts can be avoided. Finally, CfE appreciates that the DEIS recommends the use of non-barbed wire fencing for Pronghorn antelope. However, in addition to non-barbed wire fencing the FEIS should recommend minimizing fencing whenever possible and raising wire fencing for Pronghorn antelope to pass under strands when fencing is proposed within migration routes.28 7. The FEIS Should Recommend an Option to Avoid Townsend's Ground Squirrel Colony Relocation and Analyze the Likelihood that a Squirrel Colony Cannot be Successfully Relocated The Project could also impact two of the known Townsend's ground squirrel colonies in the Lease Boundary. The applicant reports that of the two known ground squirrel colonies that occur in the Project, one of them would be directly disturbed.29 Because species-specific studies were 24 DEIS at ES-13 at 4.4.2. 25 Id. 26DEIS at 4-147. 27 WDFW, Agency Comment, supra n 23. 28 DEIS at 4-202 29 DEIS at 4-186. ATTORNEY GENERAL OF WASHINGTON Sonia Bumpus, EFSEC Manager February 1, 2023 Page 7 not conducted, there is a potential for additional colonies to be present. 30 The DEIS notes that while the Townsend's ground squirrel population and population trends specific to Washington State are unknown, some studies estimate that the population may have declined more than 70 percent, with only ten percent of natural habitat remaining within the historic range.31 The DEIS requires that the applicant consider how to avoid habitat loss in Townsend's ground squirrel habitat concentration areas and known colonies, develop a plan with a "rationale for why colonies cannot be avoided," and provide "additional mitigation measures, such as colony relocation and reconstruction of habitat features."32 The FEIS should recommend an alternative to entirely avoid ground squirrel colony relocation and address the likelihood that a squirrel colony cannot be successfully relocated. 8. The FEIS Should Recommend Removing Additional Barriers to Wildlife Movement and Include Bottom Less Culverts where Grade Crossing is Necessary The movement corridor between the Rattlesnake Hills area to the north of the Habitat Concentration Area in Oregon allows for the movement of wildlife. Loss of this important corridor function could contribute to barriers to movement and resulting isolation of wildlife populations. Disturbance from the project footprint in the area associated with the East Solar Field would occur primarily on the east side of the wildlife movement corridor.33 But the wind towers and facility access roads that cross the north-south movement corridor in the east-west direction could potentially cause more significant fragmentation than the East Solar Field. Access roads up to sixteen feet in width could particularly constitute barriers to movement for smaller species.34 The DEIS recommends an adaptive management approach in which the applicant would review road based mortalities annually and propose "additional mitigation for areas" including "control, signage, temporary road closures, or wildlife passageways."35 In addition to this mitigation measure, the FEIS should consider adding bottomless culverts to any road development or upgrading in movement corridors where a grade crossing is necessary.36 These culverts could be moderate in size so as to facilitate the crossing of smaller wildlife. 30 DEIS at 4-186. 31 DEIS at ES-32; 4-185. 32 DEIS at 4-202. 33 DEIS at 3-97, Figure 3.6-2. 34 DEIS at 4-164. 35 DEIS at 4-193—194. 36 See generally L.B. Stewart, et al. Wildlife Crossing Design Influences Effectiveness for Small and Large Mammals in Banff National Park (2020) Case Studies in the Environment 4 (1): 1231752, https://doi.org/10.1525/cse.2020.1231752; T.M. McGuire, Innovative Strategies to Reduce the Costs of Effective Wildlife Overpasses (2021) U.S. Department of Agriculture, Forest Service Pacific Southwest Research Station, Albany, CA. General Technical Report PSW-GTR-267, https://www.fs.usda.gov/psw/publications/documents/psw_gtr267/psw_gtr267.pdf. ATTORNEY GENERAL OF WASHINGTON Sonia Bumpus, EFSEC Manager February 1, 2023 Page 8 9. The DEIS Should Consider the Environmental Impacts of the Proposed Alternatives on greenhouse gas emissions The DEIS includes a specific discussion of direct and indirect impacts to each alternative. However, the DEIS fails to show how each alternative would reduce or not reduce the State's greenhouse gas emissions as part of our broader statewide energy mandates. Projects such as Horse Heaven are "critical to advancing the state's objectives in providing affordable electricity, promoting renewable energy, strengthening the state's economy, and reducing greenhouse gas emissions." RCW 80.50.010. But the DEIS notably lacks any analysis of the emission reductions estimated to result from the Project or how the Project would fit into meeting the State's energy goals outlined in the Clean Energy Transformation Act, and the Climate Commitment Act. Similarly, there is no estimate of the impact on meeting our statewide energy goals if the Project was not developed. The no-action alternative would certainly have adverse environmental impacts if it would result in additional emissions that would contribute towards climate change. Therefore, the FEIS should include an assessment of how the Project would reduce the State's greenhouse gas emissions and help to meet the State's energy mandates. Similarly, the DEIS should include an analysis of the environmental impacts if the Project is not developed, including potential emissions. EFSEC should estimate this impact to provide guidance to the public and decision-makers on the tradeoffs involved if the Project is not developed. Finally, this Project could have significant impacts on historic and cultural resources. CfE recommends the EFSEC continue to engage with the tribes to develop additional measures to avoid and mitigate impacts to important cultural resources. Thank you for your consideration of this comment. Sincerely, Sarah Reyneveld Counsel for the Environment 206-389-2126 sarah.reyneveld@atg.wa.gov	Air Quality	The FEIS will include an assessment of the net effect of the proposed project and no project alternatives on GHG emissions and their relationship to Washington State GHG reduction goals.	4.3	Inclusion of assessment of the net effect of the proposed project on GHG emissions and their relationship to Washington State GHG reduction goals.
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. EFSEC will continue to engage with Tribes. EFSEC will also initiate formal consultation with Tribes and other state agencies. The FEIS will report the results of formal consultation.	3.9, 3.9.2.1, Table 3.9-1, 4.9, 4.9.3, Table 4.9-2, Table 4.9-3, Table 4.9-7, Table 4.9-10, Table 4.9-11 (a-c)	The FEIS will report the results of continued formal consultation with the Tribes.

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1117659	I would like to know why orchards and other agricultural industries use small wind mills to help regulate their crops. Why are the big windmills going to do to our temperatures and affecting our crops here. Also But hidden from view below ground are the massive concrete foundations that keep wind turbine towers upright. These poured-in-place foundations are 10-20 feet thick, 60 feet in diameter, weigh almost two million pounds, and use 40 truckloads of concrete, or approximately 400 cubic yards. The amount of fuel for the concrete trucks and for all the other truck that's going to be need is going to cause more pollution. Thank you Bennett Olsson	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117673	My spoken comments. I am a lifelong resident of the Tri-cities and I am a representative of IBEW local 112 and we represent 1300 electricians in southeastern Washington that would greatly benefit from the job that will be created by this project. My brothers and sisters of IBEW local 112 have been at the forefront of green energy production including a recent repower at the van cycle wind power project in Athena Oregon successfully extending the life of the towers down there. My brothers and sisters built the first wind and solar project in America that could put power on to the grid 24/7 through battery storage in Lexington Oregon just last year. Low-cost power is the key to attracting new industries to the area and we need the supply in whatever form it takes. My brothers and sisters depend on a steady stream of construction jobs and denying this project would not only deny them these but future jobs as well as industry turns away from the area. I understand the desire to build this project far from view but I would ask those opposed how long their commute to work is? Many of my brothers and sisters drive and hour and a half one way to work every day. This would be a welcome change of pace for many of them. IBEW Local 112 and I support this project thank you. Rylan Grimes IBEW LU 112 Organizer Cell: 509-619-4547 Office: 509-735-0512 Fax: 509-735-0514 Email: rylang@ibew112.com Ibewlu112.com	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117677	The Horse Heaven Wind Farm Project would be terrible for this area and it's not needed. We are totally against this development. It will kill birds, negatively impact tourism, degrade the quality of life for those of us who live in this area, and leave behind mammoth turbine blades that do not biodegrade. We live in an area rich in avian diversity. I see hundreds of Sandhill Cranes migrating back and forth each Fall and Spring, and the flocks stop to rest in the area. There are thousands and thousands of raptors, waterfowl, songbirds, owls, and other bird life. All will be subject to strikes by the wind turbine blades, with hundreds to thousands of deaths every year. We have world-class American Viticultural Areas here, accompanied by scores of wineries, that are a huge tourist attraction. A large part of that attraction is relaxing on a terrace enjoying a bottle of wine while taking in the big vistas of our region. That will take a huge hit if the vistas become blighted with ranks upon ranks of ugly wind turbines. It similarly degrades the quality of life for those of us who have made homes here. Most of the electricity would be sold to California or other states, so why don't they build out their own energy infrastructure? It's very inefficient to send power hundreds of miles, they need to build their own power sources locally. This project is a terrible idea, we are totally opposed to it. Dave and Kathy Blanchard Benton City, WA	Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS. A discussion of the wine industry within the study area is included in Chapter 3.8 and an analysis of the Project impacts on vineyards and wine related businesses is provided in Section 4.8.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
TC Cares and Save Our Ridges	1117695	February 1, 2023 Via Email to EFSEC and the EFSEC SEPA Comment Page Web Form TC Cares Comments on the DEIS for the Horse Heaven Hills Wind Farm Project Draft Environmental Impact Statement On behalf of TC Cares and Save Our Ridges, and numerous individual reviewers, we are submitting the attached comments on the Horse Heaven Hills Wind Farm Project Draft Environmental Impact Statement. We do not believe this project should move forward in its current condition. The SEPA process is flawed and the DEIS is filled with errors, omissions, and misrepresentations regarding the Project's purpose and need, premise, financial feasibility and viability, proposed action, lack of feasible reasonable alternatives, lack of mitigation measures, and the significance of environmental and community impacts that cannot be avoided. Even in spite of these flaws and issues, the DEIS clearly demonstrates that the Project will bring about more harm than good. It is imperative that EFSEC search, develop, analyze and present alternative solutions that actually meet the need for power generation and do not impose such damage on the environment and the communities of Benton City, Richland, Kennewick, and Finley, as well as the rest of Benton County and the Tri-Cities and beyond. The following summarizes the list of contestable issues describing the many flaws of the project, the DEIS, and EFSEC's review of the project: The EIS is Poorly Done •The DEIS is lengthy, complex, piecemeal, filled with obfuscation, and contains a plethora of would's and may's vs wills. •The DEIS fails to describe the project, impacts, and mitigations with any certainty which makes a mockery of the SEPA process and abuses the SEPA process and the public. •The developer appears to be using the SEPA process to push a foregone conclusion without proper rationale and justification. •There are repeated and re-iterated errors, omissions, and misrepresentations. The DEIS contains cascading errors and omissions that render the document unusable for rational decision-making. •The DEIS is poorly done and uses out-of-date publishing technology. It contains poor maps that are too small and fuzzy with misleading coloration and not enough detail. It is very difficult to see the project component locations which means the public is unable to identify exact turbine locations in order to complete an accurate analysis of the impacts. We needed to create our own turbine location maps. •The DEIS fails to make use of digital GIS mapping tools to help the agencies explore and fully understand the environment and the impacts of proposed actions and alternatives. •The DEIS does not contain maps of the project that identify micrositing corridors and turbine locations suitable for a reasonably accurate analysis of the impacts. Integrity of the SEPA Process Is Questionable •The ASC was updated on December 1 without proper public notice. The scope and magnitude of the changes in the ASC Update on December 1, 2022, makes the entire SEPA Process questionable. The ASC should be revoked and reissued and the DEIS should be reissued with a new comment period. •EFSEC did not perform independent validation of the data contained in the many SEPA Elements of the Environment. Any proof of quality validation by EFSEC is lacking and there are a myriad of errors, omissions, and misrepresentations throughout the DEIS that should not be there if a validation had been properly performed. •	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Chapter 1 - Project Background	In accordance with RCW 80.50.010, it is the policy of the state of Washington to recognize the pressing need for increased energy facilities, and to ensure, through available and reasonable methods, that the location and operation of all energy facilities and certain clean energy product manufacturing facilities produce minimal adverse effects on the welfare of the population and environment; including ecology of the land and its wildlife and the ecology of state waters and their aquatic life.	Section 1.3	Update Purpose and Need
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Visual Aspects, Light and Glare	Comments noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including assessing views within 25 miles of the proposed wind turbines. The viewshed map from Appendix 3.10-2, correctly showing the analysis out to 25 miles, has replaced the maps in Chapter 4 of the EIS with additional locational information included. The current analysis includes the assessment of the three criteria identified in the CESA visual impact assessment process (see Section 4.10.1.1), as well as applying methods from the BLM VRM system, to identify Unreasonable or Undue Visual Impacts. Based on this analysis, the Project would result in significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character. Ligthing comment noted and additional mitigation measure reccomendation will be considered.	4.10 / 4.10.2.4 Lighting	Yes - Will use correct turbine viewshed maps from Visual Technical Report
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emsissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Addtional air quality modeling will be perfromed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary. The FEIS will include an assessment of the net effect of the proposed project and no project alternatives on GHG emissions and their relationship to Washington State GHG reduction goals.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM Inclusion of assessment of the net effect of the proposed project on GHG emissions and their relationship to Washington State GHG reduction goals.

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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		The EFSEC consultant repeatedly just incorporated the developer's consultant's work verbatim using copy and paste. This raises serious conflict of interest issues since work done for the Applicant carries a risk of inherent bias in favor of the Applicant's project. •The DEIS lacks "impartial discussion" and is plagued from beginning to end by a noteworthy lack of detail and a verifiable lack of commitment to WAC requirements and mitigation. Purpose and Need for the Project •The DEIS fails to adequately establish a feasible purpose and need for this project. The project's funding and high price tag, as much as $1.7 billion, is not described and renders the project impracticable. •The DEIS does not contain a reasonably detailed description of how this project is being funded. Who is going to pay for this project and how? Who paid for the consultants and how much did they get paid? •No off-taker for the power has been identified at all. •The DEIS fails to explain the purpose and need for a 19-mile transmission line. •The DEIS fails to identify and analyze the impact the project will have on climate change. oThe DEIS fails to identify, document, and demonstrate that the project does anything at all to mitigate the cited near-term and long-term impacts from climate change. oThe DEIS fails to establish a pressing need for the energy that will be produced by this project. Proposed Action and Alternatives •The history of the power generation requests (BPA LGIP) are not consistent with the Project's nameplate power generation claims. They claim to have the necessary authorizations to provide 1150 MW, but the documentation only indicates 850 MW. •The project nameplate capacity of 1,150 MW is not supported by the record. The DEIS and the Updated Redlined ASC repeatedly describe the nameplate capacity in error. •Fails to justify the need for the proposed action at 1150 with interconnection capability, is only supported at 850 (LGIP requests), and fails to clarify the Boffer Canyon Substation limit of 350 MW. •The DEIS fails to identify and analyze the impacts the project will have on the Nine Canyon project. oThere has been no identification or analysis of the effects and impacts of a phenomenon known as blocking, which decreases turbine performance when an upwind wind project is too close to a downwind project. •The DEIS dismisses consideration of alternatives other than the proposed action without a rational basis and justification. •The DEIS fails to identify and evaluate the costs and benefits of any reasonable alternatives that can be demonstrated to feasibly attain or approximate the project's objectives, but at a lower environmental cost or decreased level of environmental damage. Impacts on People in the Affected Environment Visual •The DEIS fails to adequately identify and evaluate the visual impacts of the project on people in the Tri-Cities. •The DEIS Visual Assessment Report contains numerous errors, omissions and misrepresentations which render the document ineffective as a basis for decision-making under SEPA. •The DEIS fails to describe and evaluate the project based on the CESA Guidance 2021 regarding "Unreasonable or Undue Visual Impacts". •The DEIS visual simulations contain numerous errors and omissions and misrepresentations. •The DEIS fails to accurately describe the visual impacts of Option 1 and Option 2 on people. •The Applicant's commitments to mitigation of visual impacts in the DEIS are minimal, ineffective, and unacceptable. •The DEIS fails to recognize that visual impacts on Benton County are significant and disproportionate when compared to every other wind project in the State of Washington. •The DEIS visual assessment fails to apply the BLM and CESA Guidance adequately to describe and evaluate the impacts on people in proximity to the project. An area of analysis of 25 miles will be more appropriate in midwestern and western landscapes, open terrain, drier air, and larger wind projects (hundreds vs. dozens of turbines) creating a larger mass visible over greater distances. •The Applicant's, and therefore the DEIS's, visual assessment did not select Key Observation Points and Representative Viewpoints adequately. •The DEIS fails to describe and evaluate the value of the dark skies at night on the Horse Heaven Hills project. •The DEIS fails to describe and commit to commonly used, FAA-approved light mitigation technology utilizing aircraft detection lighting systems to mitigate light pollution. Population •The DEIS fails to characterize, analyze, or provide enough information to allow reviewers to quantify the level of impact to population. •The DEIS fails to accurately identify and quantify that a large number of mid-range viewers, in particular, are impacted. There is no substantiative mitigation offered. •The DEIS fails to identify and evaluate the Benton County policy goals meaningfully and then fails to recognize the importance that the features hold for the County and its residents. •The DEIS fails to describe and evaluate the visual impacts on wineries. •The DEIS fails to accurately describe and evaluate the scenic resource attributes and sensitivity levels. •The DEIS does not accurately describe and evaluate the location, proximity, and impact on people who live in close proximity to the project. The distances described in the DEIS are in error and misrepresent the real conditions found at the present time. •The ASC and the DEIS fail to identify and evaluate the impact of the project and feasible alternatives using a suitable analysis of population within the affected environment. Fugitive Dust Emissions •The DEIS fails adequately identify, describe, and evaluate the significant and unhealthy adverse impacts fugitive dust emissions that will be caused by the project. •The DEIS fails to identify, describe, and evaluate feasible alternatives that can reasonably control and mitigate the health hazards from the fugitive dust emissions caused by the project. •The DEIS fails to adequately identify, describe, and evaluate that unacceptable conditions will occur from the road construction disturbance and cause significant environmental impacts that will affect over 100,000 people in the Tri-Cities. Project monitoring of PM2.5 and PM 10 is inadequate. •The DEIS does not provide for adequate project air monitoring and mitigation plans do not identify and commit to any increased monitoring of PM 10 and PM 2.5. Wildlife •The DEIS fails to describe and evaluate special status wildlife and their habitats. •The DEIS contains numerous errors, omissions, and misrepresentations regarding the project wildlife resources and the impacts on wildlife and their habitats. •The DEIS assessment of wildlife is shallow and fails to adequately describe and evaluate the significant near-term and cumulative impacts the project will have on 20 special status wildlife species (two are endangered) and on their habitat and prey. •The DEIS ignores and disregards the mitigation recommendations in the several Washington Department of Fish and Wildlife letters. •The DEIS fails to identify and evaluate specific turbine locations that are known to cause significant impacts. •The DEIS fails to propose or even contemplate any remedy if that remedy entails turbine elimination or relocation. •The DEIS makes no mention of the elimination or relocation of turbines located in essential wildlife corridors that preserve connectivity of wildlife habitat and foraging areas. •The DEIS does not identify, describe, and evaluate wildlife resources, in particular special species, outside the boundary area even though they are clearly in the affected environment under the WAC. •The DEIS fails to evaluate impacts the project will have on wildlife outside the project boundary. •The DEIS contains no analysis of cumulative effects to habitat, especially the east/west wildlife corridor along the ridgeline of the Horse Heaven Hills. Inadequate Mitigation •The DEIS avoids mitigation commitments and defers the development and selection of mitigation measures to the FEIS and a Technical Advisory Committee selected by the Applicant. •The DEIS does not include an adequate planning horizon that considers mitigation. •The DEIS fails to provide adequate information about the indirect and cumulative impacts from the proposed action, and any reasonable feasible alternatives. •The DEIS fails to identify and describe reasonable measures that can be taken to mitigate and minimize the visual impacts on the environment. •The DEIS fails to adequately identify and describe effective mitigations for wildlife habitat and special species. The Horse Heaven Hills Project isn't green at all. The project need for the project is unproven and will force dependence on giant, mechanical monsters which have very little impact on climate change at all. This project has nothing to do with protecting the earth from the impacts of climate change and power. Instead, it is dedicated to corporate profits at the expense of the public and the impact on the local environment. Spending $1.7 billion dollars on this project, much of it is taxpayer money, is irresponsible, unnecessary, unacceptably damaging and wasteful. The complete version of the comments are provided in the attached pdf file. This file is also being transmitted to EFSEC via email with attachment. The file can also be downloaded here: https://presari.com/s/T92230000463680 If you have any problems receiving and opening the file successfully please let me know. Paul J. Krupin Appreciatively, Paul Krupin, BA MS JD 509-531-8390 cell 509-582-5174 landline Paul@Presari.com	Wildlife and Habitat	Special status wildlife species are described in Chapters 3.6 and 4.6. Chapter 3.6 describes how special status species were defined and Chapter 3.6 describes the potential special status wildlife species that could occur in the Horse Heaven Lease Boundary, habitat requirements, threats, and population status. Chapter 4.6 evaluates potential Project specific impacts on special status species with potential to occur in the Lease Boundary. The final locations of wind turbines were not available at the time of writing the dEIS. As such, conservative assumptions were applied when evaluating potential impacts to wildlife and special status species. For example, the dEIS acknowledges that the Project could result in indirect habitat loss due to disturbance to wildlife. The extent of indirect habitat loss (estimated at 0.5 miles) was measured from the micrositing corridor instead of a turbine location thereby accounting for various permeation of turbine placement. This approach overestimates the potential Project indirect impact as it does not account for micrositing of turbines away from sensitive habitat. A similar approach was applied when estimating the direct and indirect loss of special status species habitat such as Ferruginous hawk. "WSFW data may not include private property" was included to describe the limitations of available background data. WDFW maintains databases on known occurrences of special status species; however, data may be limited by where surveys have been conducted and data reported. Access is not necessarily available on private lands, as such, information pertaining to special status species on these properties may not be available. Lack of documented occurrence should not be taken as species absence. In lieu of confirmed species presence, the dEIS assumes species presence based on the availability of suitable habitat. A technical advisor committee is a useful tool developed to bring technical experts together in management of environmental impacts. The purpose of the TAC would be to provide input to mitigation measures that can be implemented and adapted based on the results of pre-construction surveys, and operational surveys. While the TAC would provide input into project mitigation, the ultimate approval of mitigation measures would be with EFSEC. The Applicant will propose TAC members but EFSEC will approve the TAC members. Exposure indices were developed for species for which flight height data was collected during field surveys. Exposure indices could not be calculated for species that were not recorded during flight (e.g. singing, perched). These species are typically species that remain closer to the ground, moving between bushes (e.g. sagebrush sparrow) and are unlikely to interact with blades. The design of baseline programs, such as acoustic surveys, were developed by the Applicant in consultation with WDFW.	4.6	n/a
andrea.grantham	1117702	I am stronly against the proposed wind farm for the Horse Heaven Hills. We live in an area blessed with natural electrical production from the current hydro dams that provide some of the lowest electrical powere rates in the country. Wind farms are not cheap, they are an eye sore. and most of the power will not be used in this area but will be shipped to other large cities and states. If these areas need more power they should be willing to have these wind farms in their locales instead of ruining ours. Please keep this windfarm away from our area. Thank you, Richard E. Carpenter 27805 S. 887 PR SE Kennewick, WA. 99338	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a

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andrea.grantham	1117706	Do not put windmills on our beautiful Hirse Heaven Hills!! We object! There are many hills to use… ours are not necessary. Jim and Mary Jacobs 6445 Sapphire Street West Richland , WA 99353	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117737	I am writing to express my opposition to the proposed horse heaven hills wind farm project. As a resident of the TriCities who lives in Pasco and one who views the Horse Heavens, daily from my home, the materially adverse impact on viewsheds of thousands of TriCitians appears to be given very little consideration ii the DEIS. No one would dare propose such a project outside the front windows of those living on Magnolia or anywhere in Puget Sound. The draft EIS fails to adequately assess the impacts upon destruction of viewsheds upon thousands of future reasonably foreseeable TriCity residents, especially the more than 40,00 new residents expected to be living in the West Pasco area north from I-182 out to Sagemoor Hills. The majority of these 40,000 new residents of Pasco will have views of the wind farm and their viewshed will be detrimentally affected. These future residents must be considered in the in EIS, as they are readily foreseeable, and residential building in the Broadmoor area of Pasco and areas north is now beginning in earnest. This is a readily foreseeable impact. The EIS should analyze the alternative of building the wind farm in areas closer to the population centers that will benefit from the power generated. The alternatives should include siting the wind farm as a floating wind farm in Puget Sound, as well as along the Washington Coast. This alternative would provide the state with additional income as it would own the aquatic land leases that would be needed if they were sited there. It would place the wind farm at a location closer to the power users and increase efficiency by reducing transmission losses. The TriCities has for years been the power generation center of the state, and has already done its share. It is time for other parts of the state to do their part and localize elsewhere the adverse effects that all power generation entails. The DEIS fails to adequately consider the impacts upon wildlife that will be killed by the massive number of windmills that will be built by this project if it is sited in the Horse Heavens. The DEIS fails to adequately analysis in sufficient detail, the adverse impacts of mining, processing and manufacturing all the materials needed to construct this project, especially the materials for the proposed battery component of the project. The failure to adequately analyze the environmental costs of these activities, are integral and necessary for the project to proceed, results in a unrealistic consideration of the environmental costs and benefits of the project. The public is tired of being given inadequate environmental reviews that exaggerate the benefits of a proposed action while not adequately considering the costs of a proposed action. It is especially worrisome that long term decisions are being made on projects that are cost ineffective, such as this one, when the actual total costs are considered, and where even the stated benefits are only present because of tax credits that hide the ineffectiveness of this method of producing power at this particular location. Therefore I firmly urge the EFSEC to deny a permit to this project. Thank you, Robert M. Carosino 130 Terrace Drive Pasco, WA 99301	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
andrea.grantham	1117744	The proposed Horse Heaven windmill farm will have by far the largest size windmills this area has yet seen at 500 feet tall and will cover about 10 square miles or 6,500 acres. The power they will hopefully generate will not really be needed as most of that "intermittent generation" will happen in the spring, the area's most windy season which is also when power consumption is low due to no / minimal need of heating or AC as in the summer and winter and on top of that Hydro output is at its seasonal high due to the spring runoff The sad fact is that these ~ 244 Monster Windmills won't eliminate or reduce any CO2 emitting power generating sources since there is none in WA State to begin with. Worse yet, these added Monster Windmills will further hamper the ability of the existing hydro system, to follows the daily load of powder need as the hydro system and overall grid has done very well at for about the past 70 years.. At a "best case" calculated 25 to 30% capacity factor; these Monster Windmills will only work to earn their keep 2.5 to 3 days out of every 10 days. The Monster Windmills will mostly produce the most power in the spring when power demand is low. During the heat of summer and the cold of the winter the wind blows little in this area, so there is no to minimal windmill output then when its needed the most. In summary, windmill power generation makes minimal and unpredictable contribution to the power grid during peak demand. Another big disadvantage is that the BPA is already FORCED to buy windmill power at well over their real costs of generation whether they need the power or not; and at high prices passed to ratepayers. These monster Windmills will provide a few temporary blue collar jobs only related to the construction and then those few jobs will go away. These Monster Windmills will have no positive effect on CO2 levels, climate change or carbon emissions and will not reduce fossil fuel use. Don't be deceived about Scouts "big tax $$$ will be paid to the schools" claim. Fact: The Stateline windmill farm in Walla Walla County since 2001 has paid less than a single teacher's annual salary per year to the local school districts. Scout will "blow" into town, put up their Monster Windmills, lay off the few that got the temporary construction jobs to erect those Monster Windmills; collect the huge PTC subsidy, and leave us to pay the bill and see Horse Heaven littered up for literal decades with these massive windmills not generating power for many days per year. Until storage technology on this scale is commercially available AND affordable which is probably another 10-15 years away, the last thing the Tri City area needs more windmills. Let the Western WA green activists and money grubbers like Scout build windmills on their skylines, not ours. Michael Scrimsher	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117763	Eight whales have died in the last two months highly likely from the off shore windmills, since that is the only new item. These windmills have issues that affect life. Christina Caprio	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
andrea.grantham	1117765	The many migratory birds that would be killed by the windmills are protected under the CFR Title 50 Part 10.13, List of Birds Protected by the Migratory Bird Treaty Act (2020). For example the Sandhill cranes that fly over the HHH at many different heights by the thousands each year. Christina Caprio NEPA Environmental Scientist	Wildlife and Habitat	The EIS provides an assessment of potential bird mortality in Section 4.6.	4.6	n/a
andrea.grantham	1117783	We are opposed to this project. We are neighbors off Clodfelter (382 PrSE) and in direct view of this project to the South. I agree wholeheartedly that these wind operations are not in the resident's best interests, especially considering our area provides plenty of hydro and nuclear power, enough to be sold to other areas of the PNW and California. Electricity and solar generated, are not enough to warrant such a vast operation. Thanks for your consideration, Monica Randall 96707 E 382 PRSE Kennewick, WA 99338	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117788	Today even the environmentalist are calling for a moratorium on east cost wind farms because the noise is interfering with the wales and killing wildlife well being! No substantial studies were done on humans and whales before these were forced on the people and built costs are enormous, 20 million per unit! This folly is our tax payer money! All indications suggests harm is being done to everyone and every creature living in the areas of these turbines! We are not Guinea pigs or lab animals. Maybe they should be called death wind turbines 9 wales dead now and countless wildlife. Do not put these in badger canyon! --badger canyon resident Becky Hughes	Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a

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Brent Gerry, Mayor/CEO, City of West Richland	1117800	January 31, 2023 Energy Facility Site Evaluation Council Sonia Bumpus, EFSEC Manager 621 Woodland Square Loop, PO Box 43172 Olympia, WA 98504-3172 Re: DRAFT EIS Public Comment: Horse Heaven Wind Turbine Project Energy Facility Site Evaluation Council: On behalf of the residents of West Richland, the Mayor and City Council would like to voice our opposition to the Scout Clean Energy's Horse Heaven Wind Project. It is not the appropriate generation resource needed for baseload service in this region and results in negative attributes for local communities. Furthermore, any project benefits are transferred outside the region, creating an inequity in impact versus benefit. The decision and recommendation for development are best made locally by communities with representation and a vested interest in the short-term and long-term repercussions. Having the Horse Heaven Wind Project decision made by the EFSEC process diminishes and circumvents local community's jurisdiction and participation to a formality rather than local community representation through county and city development processes. While the Horse Heaven Wind Project's energy generation through solar, wind, and energy storage provides diversity, the 20-30% capacity factors for wind and solar resources do not adequately contribute to resource adequacy needed in the Northwest as the region decarbonizes and loses other baseload generation resources. Even with the generation diversity, the Horse Heaven Wind Project will not provide a block-shaped resource that can be secured for meaningful customer service. This makes the value of the indeterminant generation proposed by the project less valuable locally and only beneficial with production tax credit subsidies for the project's shareholders outside the local community. The Draft EIS fails to adequately recognize or mitigate the project's limited generation benefits compared to the negative impacts on the environment and local communities. Many of the public power utilities in the Benton and Franklin Counties have a fuel mix near 90% carbon-free and are well positioned to meet the state's clean energy requirements. Yet EFSEC and SCOUT want to exploit our region for a project with intermittent generation which is unfavorable for providing reliable electrical service. Our electric utilities in Benton and Franklin County are unlikely to benefit from the Horse Heaven Wind Project's incremental carbon-free power compared to more carbon-dependent utilities outside the local community. The cost benefit analysis doesn't justify a significant impact to our community for a power source whose generation is less than 9% efficient. Ironically, when it does provide energy, it will be off-peak and take away from other energy sources that have greater than 98% efficiency rates and are also clean energy. This adds to the project's negative attributes to the local community, where benefits are transferred to remotely located utilities, likely in more affluent communities than Benton, Franklin, and Yakima County communities. The Draft EIS does not recognize or mitigate the project's negative attributes to the local community or social equity while benefiting more wealthy and less diverse communities outside Benton, Franklin, and Yakima Counties. The DRAFT EIS lacks state required process. State law (WAC 197-11-535(6)) and Governor Inslee push for public involvement, however, this project has had no local public outreach, engagement, or meetings to allow for public input for due process. In addition, WAC 197-11-440(5) requires the EIS to include a reasonable alternative. The proposal only includes the Action and No-Action alternatives. This application is lacking and needs to be fully vetted and processed to follow state law. The DRAFT EIS needs to be reprocessed to include proper public process, an analysis of a reasonable alternative and an additional public comment period to allow review and comment on the reasonable alternative to be compliant with state law. Based on the Draft EIS, the Mayor and City Council of West Richland oppose the Horse Heaven Hills Wind Project. This Draft EIS does not adequality address or mitigate the negative impacts on the environment, air quality, and local communities. Sincerely, Brent Gerry, Mayor/CEO, City of West Richland CC: City Council, City Attorney	Chapter 2 - Proposed Action and Alternatives	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]), curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	2.0	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Question for EFSEC	Comment acknowledged. Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility. Several opportunities were given to the stakeholders and the public to provide comments on the Project and Draft EIS. EFSEC considers all submitted comments and public opinion in its decision making and recommendation. Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
Tri City Regional Chamber of Commerce	1117808	See attachment	n/a	Please refer to submission 1106756	Please refer to submission 1106756	Please refer to submission 1106756
andrea.grantham	1117812	I am sorry, I cannot attend this evening's meeting. Thank you so much for receiving our comments. Please understand we do not want this wind farm in Benton County. Its wild promises only emphasize what a boondoggle it will be for our county. Instead of benefits it will provide unlivable conditions for a large population of the county and destroy a tenth of our agricultural lands. In short it is a VERY expensive but unnecessary interruption our our power grid which presently provides carbon-free power to five states. Stay out of Horse Haven Hills. Karen Batishko	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Land and Shoreline Use	Table 4.8-5 shows an analysis of the agricultural management practices for GMA Agriculture designated lands within Benton County, and the impacts that the Project would have on these land use types.	4.8.2	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Randy and Marleen Lechelt	1117816	We object to the HORSE HEAVEN WIND FARM , for the following reasons 1. Washington State is taking away our right to be protected by our local county examiners process for this windfarm, which would fail the 5 conditions set up to protect our property value, health, personal safety and safety of our surrounding wildlife. My husband was born here 74 years ago and I have lived here 73 years, we love our beautiful land. 2. The bright lights these huge industrial windmills will change our skyline forever at night. 3. These windmills are not perfected, they take oil, they fall down, they cause fires and cause numerous health problems from the low frequency noise, vibrations and flicker which causes vertigo. 4. The batteries are not perfected and only hold 30 percent of the energy produced, how can we justify our tax dollars to be wasted like this? This cost will be passed on to the customers. 5. Herds of antelope have been placed here by fish and wildlife, what will be done to protect them ? What will be done to protect the shrub steppes that are homes to our wildlife? What will be done to protect the Eagles we see perched across the street from our home? 6. Small nuclear reactors have been approved as safe and perfected, they take 6 acres of land, why can't we put those in for our power source and avoid all this damage that will take place. 7. How will you protect us from the Paraguat that was sprayed on the Horse heavens and will likely be dug up in the building process of these windmills and blown on us with the south winds? 8. How will you keep the residents and children safe on Clodfelter Rd. From the endless cement trucks during construction? All of the concerns we have above would undoubtedly disqualify Scout Energy from proceeding with this project, if it were presented to Benton County Examiner. Will your office protect us from these concerns ? Taking away our rights like this is a dangerous precedent to go forward with, does anyone on this board live here? Please put yourselves in our place, and consider us the way you would yourselves. Sincerely, Randy and Marleen Lechelt	Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light tresspass. Lighting will be visible at off-site locations.	4.10	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Vegetation	The EIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a
			Wildlife and Habitat	The EIS provides an assessment of potential impacts to pronghorn antelope in Section 4.6. Spec-13 provides mitiation measures recommended to reduce impacts on pronghorn antelope.	4.6	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	The FEIS includes the addition of a new Applicant Commitment from the Final ASC regarding the Traffic Management Plan.
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117821	I am writing to NOT xpress my support for the Horse Heaven Clean Energy Center. Although I am extremely "green" and know that we need to rid ourselves of fossil fuel based energy sources, this project will have severe negative impacts to our wildlife, especially our birdlife. These birds are having enough issues surviving in the changing climate and being wacked out of the sky by a blade or having their hunting grounds devastated by solar cells will affect not only the individual bird but the entire avian population and the greater ecosystem. Thank you for your consideration.- - Ms Levy Long term Pasco resident	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117829	I am writing to voice my opinion in opposition to the Horse Heaven Hills Windfarm. This is an unneeded destruction of the beautiful view of our ridgetops here in the Tri-Cities. Wind farms do not produce enough electricity to justify their intrusion on our ridgetops and they erroneously report their true impact on our environment. This project is simply a profit grab for Scout to take advantage tax credits and other programs Washington state has in place to further this administrations pie in the sky ideas for clean energy. We have nuclear and hydro right here and could easily produce energy in amounts greatly exceeding this project with simple small nuclear all the while taking up very, very small areas of land in unseen locations on the Hanford site and still provide jobs to the local area in similar numbers. Wind and Solar are not the answers yet though they may be in the future but they are too inefficient to bet on right now. Refuse to permit this money grab for an outside Washington entity and make the decision to have this administration look to what the people want not to want they want in their efforts to further their own political green energy agendas. Thank You	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117830	2-1-2023 Dear EFSEC: I am not in favor of the windmill project Horse Heaven hills. Keith E. Deaton	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1117846	I am Jim Chesley and I am writing in support of Horse Heaven Wind project. I find it very frustrating that Energy NW is opposed to it because it's not one of there own like the Existing Nine Canyon Wind Farm! Yet the public of the area don't live in fear of it. The birds still survived it's existence. I'd challenge people to go for the short drive to visit the wind farm from the road, the turbines are not much louder than the wind it's self. Go visit a Dam you can hear them also, yet the fish & birds survive. Go out and observe them for yourself. Form your own opinions. You won't ever find a flock of dead birds knee deep piled around a wind turbine as some would claim. Geese and other migratory birds fly over or around them. The public also ignores the fact the Nuke Plants & Dams also have changed where and how we live here in the Beautiful North West. We don't live with Spring time flooding or Summer Drought like my Grandparents spoke of, go visit the museums and see the pictures. Back about 30 years ago I recall that some of the Dams were actually pumping water back up above the dams at night when energy demands were low to conserve water because water run off from the mountains were low due to dry winters. Then after the wind farms entered production the dams didn't need to release as much water in the past to provide electricity needed. So the Dams are able to Store Water above the dams in effect Storing Energy. Wind and Water working together isn't a new thing. All forms of Energy are Needed. Remember when local Energy Northwest PUD's purchased and install their own Gas Turbines to help support the Energy Demands? The bottom line is Everything changes something. All forms of Energy are needed and a Balance is needed. We don't need to remove any Dams or shut down Nuclear Energy Production because of the potential of disaster that has to be managed daily and the challenges of storing the waste and ground water hazards. I am writing to express my support for the Horse Heaven Clean Energy Center and the role it will play in helping Washington achieve the ambitious decarbonization goals we set for ourselves with the passage of the Clean Energy Transformation Act (CETA) in 2019. I believe strongly in impact mitigation and value EFSEC's process, but know that Washington's ability to realize a carbon-free future will depend on permitting large-scale clean energy projects in a timely manner just like the Horse Heaven Clean Energy Center. This is a good project with appropriately identified mitigation measures, and backed by an experienced team that will produce up to 1,150 MW of renewable energy through a combination of wind, solar, and battery storage technology. With the passage of CETA, Washington established itself as a leader in the fight to curb global emissions. The state now has a responsibility to ensure the clean energy transition can be achieved in the necessary timeframe to facilitate fossil plant retirement, and in doing we can set an example for the rest of the nation to follow. Thank you for your consideration.	Agreement with the Project	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Confederated Tribes and Bands of the Yakama Nation's	1117872	Please find attached the Confederated Tribes and Bands of the Yakama Nation's comments regarding the December 19, 2023 Draft Environmental Impact Statement for the proposed Horse Heaven Wind Project.	Historic and Cultural Resources	It is understood that your comment letter does not constitute formal consulation with the Yakama Nation Tribal Council. Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. We acknowledge your comments regarding the proposed mitigation measures, discrepencies in the DEIS, correspondence tracking, magnitude and likelihood impact ratings to cultural resources, the Yakama Nation's request for avoidance of all archaeological resources, protective buffers for archaeological resources, additional visual impact assessments, impacts to Treaty-reserved gathering and rights to harvest, and reasonable alternatives. The FEIS will incorporate and address your comments. Factual errors and inconsistencies identified by your letter will be corrected. The FEIS will reflect your concerns about avoidance, impact ratings, proposed mitigation measures, compliance with SEPA, impacts to Treaty-reserved rights, and impacts to TCPs and the traditionally important landscape. Discussion of correspondence with the Yakama Nation will be removed from FEIS. Any discussion wit the Yakama Nation will be kept confidential and will not be reported without the consent of the Yakama Nation. In additiona, the FEIS will clarify whether any of the cultural resource reports have been formally submitted. Thank you for your time and consideration.	3.9, 3.9.2.1, Table 3.9-1, 4.9, 4.9.3, Table 4.9-2, Table 4.9-3, Table 4.9-7, Table 4.9-10, Table 4.9-11 (a-c)	Acknowledge that the Yakama Nation has requested the protection, preservation, and perpetuation of TCPs and archaeological resources. Revise Affected Environment to clarify the number and types of sites identified. Remove discussion of correspondence with Tribal entities and state agencies. Clarify if/when government-to-government consultation has taken place, and whether cultural resource reports have been formally submitted. Revisit magnitude ratings for unevaluated cultural resources. Revise statements about Yakama Nation's avoidance request. Revisit discussion of likelihood of impacts to unknown archaeological resources. Revise discussion of construction and operational impacts to TCPs given the Yakama Nation's comments on the location of, access to, and use of TCPs. Revisit minimum buffer size for documented archaeological resources. Address the Yakama Nation's criticism of the Proposed Mitigation Measures.
			Visual Aspects, Light and Glare	Comments noted in regard to visual-specific impacts. Effects on TCPs and other cultural properties are described in Section 4.9 of the EIS.	4.10	n/a
			Vegetation	The EIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2. Applicant commitments and identified mitigation for vegetation are provided in Section 4.5.2.4. The Applicant commitments include offset ratios in alignment with WDFW Wind Power Guidelines for loss of habitat, including voluntary offset of rabbitbrush temporary and permanent disturbance at shrub-steppe ratios. The identified mitigation measures include more than just tree avoidance. Additional mitigation include: pre-disturbance surveys for special status plant species; special status plant education; as-built report and offset calculation; operation and decommissioning dust control plan; decommissioning legislated requirements; and, decommissioning noxious weed management plan. Invasive plant surveys were conducted by Tetra Tech in 2020 and 2021 in separate portions of the project lease boundary. Knapweed was observed in the areas surveyed in 2020 and also in areas surveyed in 2021, but these were not repeat surveys and any changes in abundance comments should be attributed to different areas not to eradication. The differences in identified species or their abundance reflect the different survey areas. Locations of noxious weeds are provided in the ASC in Appendix K Biological Reports (2020 Botany Surveys) and in the updated ASC documents for 2021 Botany Surveys. Maps included in these appendices show the locations as point sources of invasive plant observed during surveys, which provide information on the distribution of invasive plants. SEPA requires "list all noxious weeds and invasive species known to be on or near the site". This requirement is met by the application. The noxious weed management plan is outlined in Appendix N of the Application for construction and operations. In addition, a decommissioning noxious weed management plan is an identified mitigation. The noxious weed management plan includes proposed methods for treatment and monitoring. Panel washing impacts to vegetation and potential changes to water availability is addressed in Section 4.5.2.1 for construction under Indirect Impacts Surface Runoff. The impacts of solar panel washing on vegetation will be discussed in FEIS.	Section 4.5; 5.2.2; 4.5.2.4; 4.5.2.1; ASC; Appendix N; Appendix K	4.5 - Include assessment of the impact of solar panel washing on vegetation with respect to invasive plants.
			Wildlife and Habitat	The EIS evaluates to the potential impact on Pronghorn antelope based on background data summarized in Section 3.6.2.2, including data provided in Fidorra and Peterson (2021), Fidorra et al (2019), and information provided by the Applicant. If the Yakama Nation Wildlife Resource Management Program has additional information regarding pronghorn antelope movement that can be shared with EFSEC it will be reviewed and considered in the FEIS. The EIS (Section 4.6.2.4) describes the potential Project related impacts to Pronghorn antelope including animal avoidance during construction and operation, mortality, habitat loss, and barriers to movement. Mitigation measure Spec-13 would require the Applicant to conduct seasonal surveys to understand how pronghorn use the Lease Boundary and monitor changes in movement patterns. The mitigation measures proposed for ferruginous hawk (Spec-5) would require the Applicant to maintain infrastructure 2 miles away from known ferruginous hawk nests. Deviation from this mitigation would require review and approval by EFSEC and would require the Applicant to propose additional mitigation measures to avoid strikes (e.g. curtailment), additional offsetting specific to ferruginous hawk, and follow up monitoring. The Horse Heaven Project does not overlap sage grouse habitat concentration areas or modelled suitable habitat (e.g Washington Gap Mapping Distribution Map - Sage Grouse (Centrocercus urophasianus) (naturemappingfoundation.org)). There are no reported occurrences of greater sage grouse in PHS data or recorded by the Applicant during the field surveys. Sage grouse were not identified as a species of concern for this Project by WDFW. Modelled corridors joining habitat concentration areas in Yakama County are located generally west of the Lease Boundary. If the Yakama Nation Wildlife Resource Management Program has additional information regarding greater sage grouse that can be shared with EFSEC it will be reviewed and considered in the FEIS.	4.6	n/a
			Executive Summary	The executive summary provides an overview of the larger report. It is written to share the main points of the report with individuals who may not have time to review the entire report. The intent of the executive summary is not to present an in-depth analysis of the Project and detailed impacts to the affected environment.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
andrea.grantham	1119004	I am writing to express my disapproval of this project to be considered Thank you	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119025	I do not support the HHH wind farm due to the fact that it will have an adverse effect on the economy, the environment, and the health of local citizens. Agriculture is a huge part of our local economy and I feel that the wind farm may have a dramatic effect on our diversified agricultural production. I also feel that the destruction of local shrub step can not be easily remediated and that the impact on several endangers species that rely on that habitat will be adversely affected. Finally, I am concerned at the close proximity that this farm will have to many local residence and the health effects that it may have on families living within a 6 mile radius from the turbines. I hope that you will make the right choice and not allow this farm to cause such a dramatic impact to so many things within our state, a state that prides itself on environmental concern and the health and safety of its citizens. Denise Senor	Socioeconomics	Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. This analysis did not identify negative economic impacts.	4.16 and Appendix 4.16-1	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			Land and Shoreline Use	Table 4.8-5 shows an analysis of the agricultural management practices for GMA Agriculture designated lands within Benton County, and the impacts that the Project would have on these land use types.	n/a	n/a
andrea.grantham	1119035	I would like to voice my objection to the proposed wind farm for the following reasons: Because of their massive size they will be an eyesore to our community. Approximately half are planned to be approximately 60 feet taller than the Space Needle. Taller for sure, and likely hundreds of feet wider. They're very invasive of our natural space. The footprint of the proposed development is larger than all of our communities combined. That being five cities of Kennewick, Pasco, Richland, West Richland and Benton City. Wind turbines have proven to be devastating to the habitat of birds and a disruption to the other local species. We are fortunate to have many varieties of waterfowl, hawks and upland birds in our area. We have not been advised where this power will be utilized. We in the Tri-Cities have had adequate power with our local production through Hydro, Nuclear, and some wind generated power. If this power will be sent elsewhere, then let those areas find their own solution without destroying our serenity. Because of the massive cost of construction of these facilities, we Tri-City residents will almost positively be forced to pay higher electric rates than we currently have. So this represents another cost increase for our residents. This is very difficult for many of our residents, particularly we who are on fixed incomes. Now, where will all of those massive blades come from? And when the lifespan is complete where will you bury those hundreds of blades that cannot be recycled? Has there been a cost comparison completed that shows the cost effectiveness of a wind farm versus nuclear power? Nuclear could likely be produced with a much smaller environmental impact than hundreds of wind turbines. And finally, I suggest concession if necessary, that these outrageously large turbines be located at least five or ten miles south of miles of our Tri-Cities. Thank you for your consideration of my viewpoint. Gene Torrey 1814 s. Jefferson Pl, Kennewick, WA 99338 Grtorrey@Charter.net	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. This analysis did not identify negative economic impacts.	4.16 and Appendix 4.16-1	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
andrea.grantham	1119037	I support the Wind farm project because: 1. It will increase jobs in our area 2. It will provide more clean energy for us (and if it goes to California, there will be less pollution there to blow up to our area) 3. It allows continued use of the land around it. 4. It is more attractive than oil spills, tar sand mining, coal mining, refineries, pipelines. 5. It gives us more independence from the fossil fuel industry, keeps more of the profits local. 6. It is a less expensive form of energy generation. 7. The batteries that are part of the project will allow for more consistent energy availability from these sources. Bruce Kerr Renee Kerr	Agreement with the Project	Comment acknowledged.	n/a	n/a
Audubon Washington	1119045	To whom it may concern, I'm submitting our comment letter via email as well as through the portal, as there is no confirmation of receipt available when using the portal. Thank you for your consideration of our comments, Trina Bayard -- Trina Bayard, Ph.D. Director of Bird Conservation 206.704.4303 Pronouns: she/her Audubon Washington 5902 Lake Washington Blvd. S. Seattle, WA 98118 wa.audubon.org	Chapter 2 - Proposed Action and Alternatives	Issue 4: The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Wildlife and Habitat	Comment: The DEIS does not provide enough information to analyze likely environmental Impacts Analysis: Project Design and Siting: Technical committee The purpose of Mitigation measure Hab-4 – Formation of a TAC was to require the development of a technical community to support EFSEC with reviewing and approving Project components and mitigation as the Project develops. The TAC would not have decision making authority but would be composed of a group of experts that are able to advise the Applicant and EFSEC on additional mitigation measures that may be required as additional information on wildlife presence and project design become available. Analysis: habitat fragmentation WDFW was consulted through the development of the EIS. The proximity of infrastructure to draws and canyons was reviewed and captured in the development of mitigation measures (Hab-1 and Hab-2) requiring the Applicant to avoid modelled movement corridors, draws, and canyons. Adaptive management in the form of mitigation plans are required if avoidance is not feasible. Final infrastructure placement and mitigation plans would require approval by EFSEC prior to implementation. Mitigation measure Hab-2 will be updated in the FEIS to provide additional clarity as to the mitigation measures and follow up management required to reduce impacts to wildlife movement Ferruginous hawk Habitat loss calculations provided in the dEIS were developed based on input from WDFW including information on species core habitat provided by WDFW ferruginous hawk experts. Information on potential impacts to ferruginous hawk was obtained via a literature search and discussions with WDFW scientists with local expertise. While ferruginous hawks may return to old nest sites, several of the sites reported in PHS data have not been active for many years. The calculations provided in the dEIS are of expected habitat loss based on current conditions (e.g. current use) and not reduction in habitat capacity, which considers the impact to the landscape's ability to support future ferruginous hawk populations. While this was the approach used to calculate impacts, mitigation measures for ferruginous hawk (Spec-5) were developed using a conservative approach by requiring that the Applicant buffer nests documented as active and documented in PHS with the intention of preserving future landscape capacity. Mitigation measure Spec-5 requires that EFSEC approves any infrastructure within 2 miles of a ferruginous hawk nest. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Spec-5 requires that the applicant provide additional mitigation measures to reduce risk of collision (e.g. curtailment when nests are active, See Spec-5 1(b)) and habitat loss (e.g. offsetting, see Spec-5 1(c)). Species Exposure Index Flight behaviour does contribute to the risk of bird collision with turbines as some species are more maneuverable and better able to avoid collisions (micro avoidance) or avoid wind power project as they approach the area (macro avoidance). However, as noted in Adams et al (2017) data is not available for all species to adjust the species exposure index to account for avoidance of turbines (micro avoidance). Adams et al (2017) accounted for macro-avoidance (e.g avoiding the area where turbines are) in their calculation, which would result in reduced risk indices by reducing the likelihood of birds entering the wind project area. As this factor was not accounted for in the Horse Heaven calculation it may be more conservative. The adjacent Nine Canyon project was used as a surrogate to predict the rate of bird mortality at Horse Heaven based on its proximity to the Lease Boundary,	4.6	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119047	Attached, for your reading pleasure, are **my revised comments** on the December 2022 Draft HHH EIS. I would appreciate detailed written responses to address/answer all of my comments contained within the attached comment review form. Thank you for your consideration. Sincerely- Kevin Leary	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
			Fact Sheet	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources. Comment reguarding flashing red FAA ligthing noted and additional mitigation measure reccomendation will be considered to reduce the operation of these ligts. Commetn reguarding light pollution noted. THe lights while visible at night, will not illuminate any property nor degrade sky glow.	4.10	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. Project impacts on property values will be assessed in the final EIS. Sections 3.16 and 4.16 present Socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities. The impact of wind farms on property values is addressed in the EIS. Regarding benefits of the Project: the Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	3.16, 4.16 and Appendix 4.16-1	4.16 - Discussion of Project impacts on property values
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	The bird study referenced is provided in Attachment 4.6-1. It discusses the risk of mortality of avifauna based on site specific data including bird flight heights and abundance.	Attachment 4.6-1	n/a
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. Once government-to-government consultation is initiated with the Yakama Nation, EFSEC can better assess the impacts to TCPs, including any cultural resources associated with the Missoula Flood landscape and Rattlesnake Mountain. The FEIS will present the relevant information on impacts to TCPs. The location and nature of impacted TCPs may not be included in the FEIS to protect these resources.	4.9	Address visual impacts to TCPs, if pertinent information is available. Include results of government-to-government consultation, if initiated, on impact analysis.
			Executive Summary	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Clark Stolle andrea.grantham	1119048	Hello, My name is Clark Stolle and I am a resident of the City of Kennewick, Benton County, WA. I am writing in opposition to the Horse Heaven Wind Farm proposal. My comments are attached for your consideration. I respectfully ask that you deny this project. Thank you, Clark Stolle	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119053	I'm sending this email to the Public Hearing and Request for Comments. I pray that the people who have the power to approve or disapprove the installations of the wind fam on the Horse Heaven Hills will decide to not approve installation. I'm sure you have read all the pros and cons for the installation of these wind turbines. First and foremost is the damage they will do to our beautiful hills, birds, animals and air. I'm told that the energy they produce will not be used by the tri-cities. So if that is ture, then don't build them in our backyard. This is one project that shouldn't happen. They are both environmentally and economically a disaster. Wind turbines never pay for themselves. The only reason for their existence is because taxpayer money subsides them. If they are that good a deal why do they need to be subsided? This project puts banks, investors and especially taxpayers at risk.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Socioeconomics	Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. The economic analysis did not identify any negative economic impacts resulting from the project. Also, the Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	3.16, 4.16 and Appendix 4.16-1	n/a
Kahryn Campbell-Owner of Anelare Winery	1119058	Hello, My name is Kahryn Campbell. I live and work in Benton City on the McBee hillside, and would like to submit my public comment regarding the Horse Heaven Hills wind turbine project. Please see attached. I would also like confirmation that this has been received and reviewed. Thank you kindly, Kahryn Campbell Proprietor Anelare Wines 19205 N. McBee Rd NW Benton City, WA 99320 (509) 303-5869 Cell: (509) 521.8926 www.anelare.com	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. The viewshed analysis maps, which identify how many turbines would be visible within the area of analysis, have been updated to show more context. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	Yes - Will use correct turbine viewshed maps from Visual Technical Report
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project. Specific to Item #4: The comment is correct that McBee Trailhead is not shown on Figure 3.12-1. McBee Trailhead is part of a greater network of trails within the Horse Heaven Hills Trailhead shown on Figure 3.12-6.	4.12	n/a
andrea.grantham	1119060	I am strongly opposed to any such project on the Horse Heaven Hills that overlook the Tri-Cities (Richland, Kennewick, Pasco) and surrounding areas. You've heard all the arguments against such project and I could and have added my own at different times during this process. One thought that keeps occurring to me is the ugliness of the wind turbines on the land. I see that many of you making the decision on the project are from the "West" side of the state, as such this in no way impacts your lives on a daily basis, nor even in some cases in a lifetime. I like to imagine wind turbines in the Seattle and Tacoma area and how adamant the opposition would be if we were to site the area around the Space Needle, or the area in Puget Sound off Elliot Bay. Or perhaps off Point Defiance in Tacoma. Neither of these sites would pass first muster. Given all environmental conditions the same at all sites as the Horse Heaven Hills, no way would Seattlites or Tacomans want to look at the ugly blight on the landscape of wind turbines. We in the Tri-City area feel the same way about not wanting the blight here to take away the panorama of the magnificent Horse Heavens. I've lived here my entire life, born and raised in Prosser, and those hills might be barren and void of any trees; however, that is also the beauty of the landscape. Don't take away the one thing that makes this area standout in it's beauty. Respectfully, Bill Letourneau West Richland Washington	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Rick Dunn, General Manager of Benton Public Utility District (PUD)	1119061	Attached is an OpEd piece by Rick Dunn, Benton PUD General Manager, highlighting the fallacy of continuing on the "wind energy as a viable clean energy alternative" path. It needs to be included in the public record. I also sent this through the website but the file name looked very strange so I don't trust that it actually will be included. Karen Brun 105506 Tripple Vista Drive Kennewick, WA 99338	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	
andrea.grantham	1119073	Dear Council Members: please know that I am ADAMANTLY OPPOSED to the proposed above subject wind farm. I never thought I would ever see a proposal to build a project like the HHH windfarm which has so many negative facts against it that it would even be considered by people in government to put such a terrible project in someone's community - especially when our government passed a law that says we have no say in whether or not this project is built. We elect government officials to protect us from this kind of a worthless and damaging farce, and to not strip our rights to have a say in what is appears is trying to be forced on us. The reasons this project should not be built are far too many to properly address and list in this type of communication. However, following are some of the main items why this project should be killed immediately: 1.It is financially unfeasible. The cost to build and maintain it far exceeds the economic benefit. A few short term construction jobs that benefit the Governor's union supporters are not enough of an economic benefit to ruin life for the rest of us. 2.It will never produce electricity even close to its maximum capacity on a consistent basis because it relies on the weather and wind that doesn't blow on a consistent, predictable basis, especially in the winter and summer when energy in all areas is most needed, when the Tri-Cities power-producing sources more than meet that need. 3.When it is producing electricity, it is extremely hard to enter that electricity into the existing power grid while other reliable, cheaper sources are producing and supplying all the electricity needed and usually all the grid can handle. 4.Storing in batteries the electricity it produces that can't be put into the grid is not even an option: i), the total carbon produced and released into the atmosphere to mine the materials to manufacture batteries is much larger than the carbon supposedly saved by these windmills, and ii). China, whom hates the US, controls a lot of the major world's supply of the materials needed to produce batteries and they won't help us by selling us these materials because their stated goal is to destroy the USA and iii). it came out in the news 2 days ago that the only lithium mine in the USA is being tied up and controlled by Pres. Biden and General Motors to be used to manufacture batteries for electric cars. 5.These windmills would destroy the scenic view we enjoy every day as we look at these ugly, worthless behemoths. The Golden Rule says to do unto others as you would have them do to you, which then begs the question: would you want me or any other Tri-Citian to dictate to you and Gov. Inslee that you have wind mills in your back yard? That would be quite inconsiderate of us to do that to you and spoil the value and comfort of what is probably your most valuable asset – your home? 6.They would drastically lower property values because who wants to live in area where one has to look at them and, in some cases if close enough to them, hear the blade noise, including the vibrations (for lack of a better word) they emit. 7.They would be in the habitat of the endangered ferruginous hawks; years ago, the lumber industry was severely curtailed and/or eliminated in certain areas when the spotted owl was put on the endangered species list, so why would the owl have more value than the ferruginous hawks? They are also in the migratory path of many other fowl and hamper the viability of other wildlife. 8.There is no recycling center for these huge turbine blades when they wear out and fail, or catch on fire and are no longer usable. Where are we supposed to dispose of them? Burial is unacceptable. 9.The Tri-Cities does not need what little electricity they produce, therefore, all of it will go to the west side of WA or some other state. Let these recipients of this power put them in or near their back yards and enjoy them! Oh, never mind, the west side of the state has previously REFUSED to have any of these in their area because of the same reasons the Tri-Cities doesn't want them. However, they need the power and we don't so they need to go in their area. 10.The Tri-Cities has done way more to provide power to everyone else, so it's time those in need of power make the sacrifice which is being asked of us. 11.These wind mills contribute to the growing debt of this country as they have to be subsidized because they are not economically feasible. If they are such an economic asset as Scout Energy claims they are, then let them finance, build and operate them without taxpayer/government subsidies which make them wealthy! There is no private company that would build these on their own dime. 12.A poll came out today that said the largest problem facing the citizens of the USA is - government! Proposing a project like this and allowing it to happen will be providing more reason why we citizens believe this way. 13.There are a lot more reasons why this project should not be built; you will be hearing them from others so I'll stop here. I challenge you, Council, to listen with an open mind to all the FACTS that will be presented to you as to why this project should be killed; it is a request for you all to be intellectually honest. Please don't let environmentalism to be your religion. We do not want to be forced to worship at your church. If any of you or Gov. Inslee are convinced you can save the world, then build some small modular nuclear reactors. Consider that what you are proposing will do the opposite of saving the world but will, in reality, cause much more harm to the world. Please give us citizens a reason to be proud of our government by doing the right thing: stop this project – PLEASE. Kind regards, Robert A Johnson Pasco, WA 509-948-1878	General - Question for EFSEC	Under Washington State law, EFSEC is responsible for siting and licensing the construction and operation of major energy facilities in Washington State. EFSEC is conducting its review process as outlined in Chapter 80.50 Revised Code of Washington (RCW) and Title 463 of the Washington Administrative Code (WAC) for the Proposed Facility. Several opportunities were given to the stakeholders and the public to provide comments on the Project and Draft EIS. EFSEC considers all submitted comments and public opinion in its decision making and recommendation. Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Wildlife and Habitat	Impacts to ferruginous hawk are addressed in section 4.6.2.4. of the EIS.	4.6.2.4	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	The Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income. The impact of wind farms on property values is addressed in the EIS.	3.16, 4.16 and Appendix 4.16-1	4.16 - Discussion of Project impacts on property values
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
andrea.grantham	1119075	To whom it may concern, My family and I are NOT in favor of this massive, intrusive wind turbine project. The future growth of our growing MSA is confined by the Columbia river which leads to the future commercial and residential growth along the southern boundaries of Kennewick. This project not only interferes it stops the ability from our economy to grow in this region which will severely hurt our supply and demand for our local population growth, economic prosperity and free market principles.	Socioeconomics	Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. The economic analysis did not identify any negative economic impacts resulting from the project.	3.16, 4.16 and Appendix 4.16-1	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Kathleen Stricker	1119077	Hello- I would like to register for the HHH windmill hearing tomorrow. Please let me know if you need more information. Additionally, I would like to note the following comments: My family is NOT in favor of this wind turbine project. We are specifically concerned about the following issues: Low frequency noise and vibrations Flashing nighttime lights This area does not need wind power as our electricity consumed is 99% carbon free Traffic disruption (road amending and maintenance as well as component transport) Property devaluation Impact to wildlife forage, breeding and nesting areas These are only a small representation of the multitude of negatives that demonstrate that this project is terrible for our area, terrible for our children and terrible for our future as a whole. Don't let multinational companies take advantage of capitalism at the cost of our current and future generations. Thank you, Kathleen Stricker 509.863.4550	Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11 (Vibration and LFN)	Revise FEIS to directly address Vibration and LFN.
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Transportation	Comment acknowledged and is included in the administrative record for the EIS.	4.14	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Kevin D. Leary	1119078	Attached are my comments for your consideration, review, and comment resolution. I do expect you to reply to all of my comments that require a written response. Please note that I may send a revised copy tomorrow, February 1st, if I develop additional comments and/or revisions. However, for now, please consider these my final comments. In addition, I will also upload these comments tomorrow to your respective website. Thank You- Kevin D. Leary	General - Question for EFSEC	Public outreach and engagement for the project included but was not limited to: -On March 30, 2021, an informational public meeting and land use consistency hearing was held to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances. -On May 11, 2021, EFSEC issued the SEPA Determination of Significance and Request for Comments on Scope of Environmental Impact Statement for the Horse Heaven Wind Farm Project, requesting comments on the Project EIS scope from agencies, affected tribes, and members of the public. -On December 16, 2022, EFSEC notified the public of issuance of Draft EIS on December 19. Agencies, affected tribes, and members of the public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension). The Draft EIS was available for public review on EFSEC website and copies were sent to public libraries. Additionally, EFSEC phone number, email address and mailing address were provided in the notice for requests of physical hard copies. -On January 20, 2023, EFSEC published the notice of the public hearing scheduled on February 1st 2023. Members of public who were not available to attend the meeting, were invited to submit their comments to the comment database at https://comments.efsec.wa.gov/ or send their comment in writing to efsec@efsec.wa.gov or P.O. Box 43172, Olympia, WA 98504-3172 during the 45 days comment period. -The Public Hearing was held virtually on February 1st 2023. Public comments were accepted during the Public Hearing. In accordance with statements provided in the public hearing notice, members of the public had the option of attending the meeting via Microsoft Teams online or via phone using the phone number provided in the notice.	n/a	n/a
			Public Services and Utilities	RCW 80.50.010 requires the council to "recognize the pressing need for increased energy facilities." For that reason, WAC 463-60-021, states that applications for site certification need not demonstrate a need for the energy facility.	n/a	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. Sections 3.16 and 4.16 present Socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities.	3.16, 4.16	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			Earth Resources	See Section 4.2 of the Final EIS, which discusses potential impacts to earth resources from the Project.	4.2	n/a
			Historic and Cultural Resources	Impacts to historic and cultural resources are addressed in section 4.9 of the EIS. Once government-to-government consultation is initiated with the Yakama Nation, EFSEC can better assess the impacts to TCPs, including any cultural resources associated with the Missoula Flood landscape and Rattlesnake Mountain. The FEIS will present the relevant information on impacts to TCPs. The location and nature of impacted TCPs may not be included in the FEIS to protect these resources.	4.9	Address visual impacts to TCPs, if pertinent information is available. Include results of government-to-government consultation, if initiated, on impact analysis.
			Energy and Natural Resources	The proposed Project meets the definition of an "alternative energy resource" that includes "wind" and "solar". EFSEC's review of the proposed Project is guided by RCW 80.50.010 which states that it is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change. The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities 1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources. Comment reguarding flashing red FAA ligthing noted and additional mitigation measure reccomendation will be considered to reduce the operation of these ligts. Commetn reguarding light pollution noted. THe lights while visible at night, will not illuminate any property nor degrade sky glow.	4.10	n/a
			Air Quality	A substantial range of life cycle green house gas (GHG) emissions has been reported in the literature. In 2021, the United States Department of Energy National Renewable Energy Laboratory (NREL) published a comprehensive review and comparison of life cycle analyses (LCA) of GHG emissions from electric generation (Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update, accessed on February 23, 2023 at https://www.nrel.gov/docs/fy21osti/80580.pdf). The evaluation indicates that median reported life cycle GHG emissions from wind and solar photovoltaic electirc generation, 13 and 43 g CO2e/kWh, respectively are more than an order of magnitude lower than median reported life cycle GHG emissions from natural gas, oil or coal-based generation (486, 830 and 1001 g CO2/kWh) and comparable to median life cycle emissions from nuclear and hydropower of 13 and 27 g CO2e/kWh, respectively. Natural gas, nonhydroelectric renewable resources (mostly wind), nuclear energy, and coal generate almost all the rest of Washington's in-state electricity. Natural gas is the second-largest source of in-state net generation, and it fueled 12% of the state's total electricity generation in 2020 (Washington State Profile and Energy Estimates, US Energy Information Administration as accessed February 23, 2023 at https://www.eia.gov/state/analysis.php?sid=WA#:~:text=Natural%20gas%2C%20nonhydroelectric%20renewable%20resources%20%28mostly%20wind%29%2C%20nuclear,of%20the%20state%27s%20total%20electricity%20generation%20in%202020). As a result, life cycle GHG emissions from the Horse Heaven project are expected to result in generation that is comparable to or less than other forms of bulk generation available from the grid.	4.3	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Introduction	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Wildlife and Habitat	The referenced bird and bat report was provided in Attachment 4.6-1 of the EIS. The report uses Project specific bird risk indices developed from flight height data collected at the Lease Boundary. The report uses Project specific turbine dimentions along with available literature to compare the potential impacts of turbine options.	Attachment 4.6-1	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119081	Greetings – My name is Patrick Grengs. I am writing in regards to EFSEC NOTICE: HHH Wind Farm Notice of Public Hearing and Request for Comment on DEIS / Horse Heaven Wind Project | EFSEC - The State of Washington Energy Facility Site Evaluation Council As a 30-year resident of the Tri-Cities, owner of 40 acres of farmland under cultivation (West Richland) I am writing to make clear my statement against any construction related to the "Clean Green" Wind turbine farm. My reasons are outlined below. First and foremost, wind turbines are not economically viable: •Wind power is intermittent – when the wind stops, the power must be provided by hot-standby sources. These include hydropower, nuclear, coal-oil-gas. •Every watt of power produced by base-plate wind must be supplemented by backup sources. At a minimum, this doubles the cost of wind power. •Additionally, the backup power (hydro, nuclear) will need to be on stand-by mode while the wind power is feeding the electric grid. •Wind turbines have a cut-in and cut-out wind speed. That is, the turbine will not generate power until the wind reaches the cut-in speed. The cut-out speed is the wind-speed where the turbine is brake-locked. As such, during very high winds, the wind turbines will not even be rotating; all the while, the blades are wearing out due to stress fractures. •The recent wind turbine debacle in Texas was just one example of where the failure of wind power results in catastrophic failure of the electric grid. Wind power is not "green" – although the wind is renewable the wind turbines must be replaced: •The standard windmill with a 2Mw baseplate generation capacity (those commonly seen throughout the U.S. with the 200' tower and 100' blades) requires a foundation consisting of 2,500 tons of concrete. Concrete is made from a mixture of cement, water, sand and gravel. The cement, 600k pounds in total, is created in a process that requires heat curing and the expenditure of fuel that generates 0.93 pounds of CO2 for each pound of cement. The windmill, before it generates 1kw of power, has already generated ~560,000 pounds of CO2. oThe National Ready Mixed Concrete Association says that, during production, each pound of concrete releases 0.93 pounds of CO2. ohttps://www.ecori.org/climate-change/2019/10/4/global-warming-has-a-co2ncrete-problem oIn addition to the concrete, you have the several tons of rebar reinforcement, plus the metal tower along with the gearbox and other components that must be mined, refined and fabricated. •All the components for a turbine must be transported by vehicles (trucks, trains) that require fuel which generates more CO2. •Wind turbine blades must be replaced every 15 years; they wear out like aircraft wings. Stress fractures break down the effectiveness of the blade which requires replacement prior to catastrophic decay. Germany is already experiencing the result of this as wind farms have been decommissioned due to known material degradation of the blades. Most of the turbines in the Columbia Gorge were installed during the period 2008-2010. These will need to be replaced no later than 2025. Watch for the online films of an ever-increasing number of turbine failures. •Offshore wind turbines need to be replaced more frequently due to the adverse effects of salt water. Every wind turbine currently in operation, along with the future construction of offshore turbines, five years out, will need to be replaced in 15 years. •See here: https://srsroccoreport.com/major-flaw-in-the-wind-power-industry-terrible-hidden-secret-the-wind-industry-doesnt-want-you-to-see-3/ •Wind turbine blades can only be "recycled" at exorbitant costs. Instead, government municipalities have taken in spent turbine blades; for this, they receive tax-credits and other State-incentive subsidies. Instead of burying them in landfills, the are piled up out in the desert or open spaces of sparsely populated areas – out of sight, out of mind. •Hydropower is 100% renewable. In Washington State, hydro is not classified as "renewable" – this is to mandate the construction of wasteful, economically bankrupt wind turbines and solar to meet politically-mandated "Green Targets." Consider the destruction of property values: •These huge wind farms destroy the scenic vistas and natural open spaces. They require orders of magnitude more land per kWh when compared to nuclear. •They reduce property values to homeowners and landowners because of their adverse effects on the environment and natural surroundings. •Knowing what I know about the false economics of wind turbines, I see them as a vast pollution across the landscape. Looking at the fundamental rational for wind turbines – to address so-called "Climate Change." •Whether the sea levels are rising or falling, glaciers are advancing or retreating, mean atmospheric temperature is increasing or decreasing; know this: the climate is always changing. If we lived in a static climate, this would be cause for concern. •"Climate Change" as advertised by the MSM and state scientists, is bunk – to wit, the 97% consensus is a fraud: oThe Cook study of climate paper abstracts and its resultant 97% consensus has been roundly discredited. oThe online climate survey by Doran, et. al, with its 97% results, when looked at mathematically, has similarly been revealed to be without merit. o10 minutes of research on the internet illustrates the 97% figure to be an arbitrary fabrication. •The sea levels have been rising at the rate of approximately 2mm per year over the past 150 years. That's one foot over 150 years. This is not an emergency. This is not a crisis. This is normal. •When 25+ years of IPCC reports slowly remove any notion of the existence of the Medieval Warm Period -- the premise of which would invalidate the necessity for AGW (Anthropogenic Global Warming) you must know that something aside from Science is taking place. •When 95% of all the greenhouse gasses consist of water vapor, and you cannot put a tax on water vapor ... and life-giving CO2 is labelled a pollutant, then you need to be assured that something is rotten at the very core of the Great Climate Change Fraud. •When children are used as tools to further the notion that Climate Change, as the result of man-made use of fossil fuels, is changing or otherwise damaging the Climate, then know that you are dealing with Climate Charlatans. •Consider the direct effect that wind turbines have on the climate: oWind turbines change the wind velocity to such an extent, that in the larger wind farms (report by US Wind Power 2016), the rows of turbines at the trailing end of the wind vector move more slowly because of the momentum of the wind being significantly dampened by the turbines on the front of the wind wave. In short, the actual amount of power produced is significantly less than the calculations from the models. oWind turbines directly change the climate by parasitizing the surface convective air currents which place a drag on the vertical atmospheric mixing. This effect is mostly evidenced in offshore turbines that dampen the smooth laminar flow of air that oscillates between the land and the sea. oWhen you have over 250,000 wind turbines, around the world, that directly change the climate via parasitization of surface convective air currents which dampen atmospheric mixing and nobody from the Union of Concerned Communists or the Friends of Global Progress, is even bothering to wave a flag, then you can be assured that Climate Change Catastrophism is less a matter of science and more a matter of politics and taxpayer financed corporatism. •"Climate Change" and the push for so-called "green energy" as advanced by The State is easily the largest scam in recent history. Electricity produced by the hydroelectric dams provides the most cost-effective and reliable form of energy. The dams do not shut down at night. They do not shut down when the wind stops. The fluctuations of so-called "green power" (solar and wind) are highly dependent on power from 24/7 sources including hydroelectric dams and nuclear plants. Solar and Wind farms require far more land area per kilowatt hour produced when compared to Hydro and Nuclear. Additionally, solar panels have a tremendous cost in terms of the waste products from both their manufacture and disposal. Every wind turbine now in operation will need to be replaced in 15 (or fewer) years. Instead of desecrating our beautiful landscape in Eastern Washington, we should focus our efforts on preserving the hydropower currently in operation and advance the build-out of nuclear reactors. In summary, I am fully opposed to HHH wind turbine project. I encourage you to work to ensure that the Horse Heaven Hills remain unblemished by the appearance of the proposed windmills. Respectfully submitted, Patrick D. Grengs II / Sandhill Landowner and Rancher, West Richland, Washington	Air Quality	A substantial range of life cycle green house gas (GHG) emissions has been reported in the literature. In 2021, the United States Department of Energy National Renewable Energy Laboratory (NREL) published a comprehensive review and comparison of life cycle analyses (LCA) of GHG emissions from electric generation (Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update, accessed on February 23, 2023 at https://www.nrel.gov/docs/fy21osti/80580.pdf). The evaluation indicates that median reported life cycle GHG emissions from wind and solar photovoltaic electirc generation, 13 and 43 g CO2e/kWh, respectively are more than an order of magnitude lower than median reported life cycle GHG emissions from natural gas, oil or coal-based generation (486, 830 and 1001 g CO2/kWh) and comparable to median life cycle emissions from nuclear and hydropower of 13 and 27 g CO2e/kWh, respectively. Natural gas, nonhydroelectric renewable resources (mostly wind), nuclear energy, and coal generate almost all the rest of Washington's in-state electricity. Natural gas is the second-largest source of in-state net generation, and it fueled 12% of the state's total electricity generation in 2020 (Washington State Profile and Energy Estimates, US Energy Information Administration as accessed February 23, 2023 at https://www.eia.gov/state/analysis.php?sid=WA#:~:text=Natural%20gas%2C%20nonhydroelectric%20renewable%20resources%20%28mostly%20wind%29%2C%20nuclear,of%20the%20state%27s%20total%20electricity%20generation%20in%202020). As a result, life cycle GHG emissions from the Horse Heaven project are expected to result in generation that is comparable to or less than other forms of bulk generation available from the grid.	4.3	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications and others.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a

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From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Becky Hughes	1119085	I will not be able to speak at your meeting feb 1, but please enter my objections to this project. I do not want these wind Turbines built in my neighborhood. Many individuals neighborhoods, animal, wildlife, bird sanctuaries, back up to the hills which are the raptors hunting grounds. The high powered electric lines they will be installing to service the wind turbines can impact health too not mention the actual construction will have on the environment badger is the only 2 lane rural road for the residents to move thru the area and if they tear up the sand it will be blowing everywhere making outdoor life unbearable. This Project is backed by Australian investors (motivated by our tax payers subsidy) that hired a Colorado based Company (Scout Energy) to erect 244 wind machines 671 feet tall for 24 miles on private wheat farms, protected Lewis and Clark Heritage Trail along a ridge/canyon area. These are placed in the Pacific Flyway migration path, degrading the shrub steppe ecosystem (federally protected birds and plants.) There is no energy/economic impact of this project other than the out of state user or large corporation that will benefit from purchasing a "green energy source" with transferable tax credits to another facility not meeting energy guidelines (no penalty.) Other states denied this project. Our local authorities and public were bypassed input and it was directly placed in Olympia! Negatively impacting our wine and agriculture, higher energy bills for consumers. Currently Europeans are rethinking this minimum producing wind turbine energy and beginning to dismantle them. European data points to health hazards including the environmental impact (Netherlands and Germany dismantling has begun). One of the Hawk pairs that lives in the tree at the intersection of Badger Rd and Badger Canyon Rd. There are many nests in our canyon this is only one. We also have other protected species living in our land. There has been no real impact statements produced locally only the investors who bypassed us. Dust blowing in residential environment both from the wind turbines and the construction. Demand for Water, depleting the aquifers, all residents are on well water with no other source This is Protected Birds breeding/hunting grounds and migrating fly way Wildlife & protected antelope range in the living environment Construction of both kid storage and the power lines will make living and traveling thru the area unbearable. Restricted small 2 lane road Noise and heavy equipment tearing up Terrance, roads There has been no Placement plans of turbines and no noise, dust temperature studies. Our Health and air quality will deteriorate to unbearable levels Harvard study showed an Increased heat 8* our temp last summer were often in the 100* already! This is Poor, unreliable and costly power production that has been proven to cause Heath problems for people forced to live in immediate area. I do not want the wind turbines in anyone's living environment. Look what is happening to the wales on the east coast.! Becky Hughes Concerned citizen of Badger canyon Kennewick, WA 99338	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation. Appendix J of the updated ASC indicates that Wallula-Dodd Road Water System would be willing to eneter into a contract with the Horse Heaven Project to supply the required water for construction.	3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Air Quality	A substantial range of life cycle green house gas (GHG) emissions has been reported in the literature. In 2021, the United States Department of Energy National Renewable Energy Laboratory (NREL) published a comprehensive review and comparison of life cycle analyses (LCA) of GHG emissions from electric generation (Life Cycle Greenhouse Gas Emissions from Electricity Generation: Update, accessed on February 23, 2023 at https://www.nrel.gov/docs/fy21osti/80580.pdf). The evaluation indicates that median reported life cycle GHG emissions from wind and solar photovoltaic electirc generation, 13 and 43 g CO2e/kWh, respectively are more than an order of magnitude lower than median reported life cycle GHG emissions from natural gas, oil or coal-based generation (486, 830 and 1001 g CO2/kWh) and comparable to median life cycle emissions from nuclear and hydropower of 13 and 27 g CO2e/kWh, respectively. Natural gas, nonhydroelectric renewable resources (mostly wind), nuclear energy, and coal generate almost all the rest of Washington's in-state electricity. Natural gas is the second-largest source of in-state net generation, and it fueled 12% of the state's total electricity generation in 2020 (Washington State Profile and Energy Estimates, US Energy Information Administration as accessed February 23, 2023 at https://www.eia.gov/state/analysis.php?sid=WA#:~:text=Natural%20gas%2C%20nonhydroelectric%20renewable%20resources%20%28mostly%20wind%29%2C%20nuclear,of%20the%20state%27s%20total%20electricity%20generation%20in%202020). As a result, life cycle GHG emissions from the Horse Heaven project are expected to result in generation that is comparable to or less than other forms of bulk generation available from the grid. As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Addtional air quality modeling will be perfromed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Energy and Natural Resources	The Washington State Energy Facility Site Evaluation Council (EFSEC) is the state agency responsible for evaluating and making recommendations to the governor on approval or denial of certain major energy facilities in Washington. The proposed Project falls under EFSEC's jurisdiction because RCW 80.50 allows Scout (the Applicant) to choose to apply for site certification through EFSEC. The Project meets the definition of an "alternative energy resource" that includes "wind" and "solar". EFSEC's review of the proposed Project is guided by RCW 80.50.010 which states that it is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change.	1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities	n/a
			Public Services and Utilities	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. Impacts to air quality are discussed in Section 4.3.2.1 of the EIS. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			Wildlife and Habitat	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]), curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	4.6	Mitigation Measures HAB-1 will be updated to require any Corridor Mitigation Plan to include performance standards and measurements. Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Cumulative Effects	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119088	I'm again't windmills as a energy source. I remember growing up in Richland as a child and one day my mother telling me to quit throwing our trash out the car window. There was a new law that forbid it. These windmills are a million times worse at littering our landscapes. I'm distressed and totally opposed to locating these behemoth eyesores anywhere they can be seen. I know we have climate concerns but this borders on insanity and our mental health is a real concern going forward. Since scout proposed this horrid idea I've not heard one positive comment from friends, family and other Folks in Benton County - not one! -. Sent from my iPad. Thank you Larry and Cherryl Worley	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119091	I am not in favor of the wind turbines being considered for the hills around the Tri Cities, WA. Environmentally they are a disaster. Visually they are intrusive. This is not a long term solution.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119099	Please know that I am personally very opposed to the proposed wind turbine project here on the Horse Heaven Hills. Of all the ways to generate electricity, I believe that this is the least productive and I'm sure very costly. Please do not permit this project in our area. Thomas Brun Kennewick WA	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119100	I would like to submit my objection to the Horse Heaven Wind Farm project. This project would be situated in an area unsuitable for such a large project. The skyline of the entire Tri Cities area would be ruined by this. I am not against "green energy" but this proposal is short sighted. Windmills have a projected lifetime of only 20 years before replacement. The disposal of the components would seem to cause more harm to the environment than any good the windmills might offer. All of the energy produced would be used on the opposite side of the state. If the project went forward it would be more suited for a western Washington location. The better idea for energy production would be small modular nuclear reactors. Thank you, Lydia McMillin Richland, WA	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
J. Polehn	1119105	Dear EFSEC: 1/31/23 Listed below are my comments on the subject project and EIS I ask you do provide me with a written response for each of my comments. Thank you. J. Polehn jpolehn1@yahoo.com ========== Horse Heaven EIS comments, 1/29/23 * The EIS/project does not address adequately impact to humans and mitigation of the wind/solar project at the start of the project (i.e., obtaining and constructing materials for the project). CO2 emissions to obtain/dig up and produce the wind turbines, batteries, and solar panels for installation, during operation, and to the end of the project (i.e., decontamination & decommissioning). Specifically not addressed: 1) Loss of farm land needed to produce food for humans (i.e., animals as the World Economic Forum calls humans) as literal rehabilitation to the site's current conditions (e.g., no contamination left from rare earths used in the project, no contamination left from batteries used, etc.) will be possible. * https://www.scc.wa.gov/ofp 2) Impact on the loss of visual scenery on the humans and loss of property value and potential hazardous material contamination of the site and nearby properties from weather leaching from the wind turbines and solar panels. No photos of the wind turbines from the views the public and home owners will have are provided. 3) Blowing dust during and after excavation, including decontamination and decommissioning, impacts the respiratory system of the Tri-cities residents (i.e., Richland, Kennewick, Pasco, Benton City, Finley, etc.). The EIS does not provide specifics on how it will prevent adding to the already heavy dust load and does not provide detail on how it will replace the site soils so current soils are returned to original condition. The EIS provides no specific detail on mitigation of the project depleting water supplies to suppress the dust. * 2/23/2020, (video) https://keprtv.com/news/local/7-8-cars-crash-during-severe- dust-storm-in-benton-county https://www.cha.wa.gov/news/2022/3/14/its-dust-storm-season * 2/29/21, (video) https://www.nbcrightnow.com/news/watch-high-winds-cause- crashes-and-zero-visibility-on-local-roads/article_91d2bf98-90ed-11eb-bba7-b325b844d041.html * 3/28/21, (video) https://www.kxly.com/news/regional-news/7-car-crash-amid- blowing-dust-closes-i-182-in-richland/article_0c776306-7915-5ccf-a859- d04cd490c8fe.html * 12/2/22, https://www.tri-cityherald.com/news/weather- news/article268330322.html *https://www.khq.com/news/wsp-investigating-7-car-pile-up-near-richland-as- dust-continues-to-impact-visibility/article_2773517e-9022-11eb-bb45- 334da3c2fbad.html	Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2.	4.8.2	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. Visual simulations, based on project engineering design, are included in Appenidx 3.10-2 including views from residences, receation areas, and travel routes .	4.10	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. Impacts to air quality are discussed in Section 4.3.2.1 of the EIS. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			General - opposition	Potential project impacts on human environment aspects are discussed in various sections of the EIS including but not limited to assections 4.3 air quality, 4.8 land and shoreline use, 4.10 visual aspects, light and glare, 4.11 noise, 4.12 recreation, 4.13 public health and safety, and 4.16 socioeconomics.	n/a	n/a
Protect Our Winter	1119107	Please find Protect Our Winters comments regarding the Horse Heaven Draft EIS attached. We appreciate the opportunity to submit public comments, and please contact me, Spencer Shaver, with any questions regarding this comment. Sincerely, Spencer Shaver -- Spencer Shaver Campaigns Manager Protect Our Winters 612-219-8769	Agreement with the Project	Comment acknowledged.	n/a	n/a
andrea.grantham	1119108	I would like to express my opposition to the proposed Horse Heaven Hill Wind Farm. I believe there will be far greater negative impacts to wildlife than expressed by the developer. The local communities will be saddled with the terrible visual aspects that will negatively impact property values and tourist trade. As a tax payer, I am opposed to the government subsidies that are the only reason that justify the project feasibility. The cost of electricity generated will cost more than locally produced hydro and nuclear power. If California wants to buy the power let them produce it in California! Do not allow this wind farm to be built in the Horse Heaven Hills. Dale Schielke 2635 Harris Ave Richland, WA 99354	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility.	1.3 Purpose of Proposed Action	n/a
andrea.grantham	1119109	Is it true that the power will not be used locally, but rather sent to Southern California via the the Pacific Intertie Trans-mission Line? Regards, Kevin Smith Richland Resident	General - opposition	Thank you for your comment. According to the Executive Summary, "Power generated by the Project would be transmitted to existing Bonneville Power Administration (BPA) transmission lines via two interconnections. Power could interconnect to the planned BPA 230-kilovolt (kV) Bofer Canyon Substation. Power could also interconnect to the planned BPA 500-kV Webber Canyon Substation. Power would be transmitted to a purchaser under a contract with the Applicant. Such power purchasers could include any of the local or regional utilities, or commercial and industrial power users, with potential off-takers having distribution outside of Washington state."	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119117	My name is Todd Hue, We live at 28506 Spirit lane in Kennewick, WA 99338 located in Badger Canyon, Our house is roughly 2-3 miles from the nearest proposed Turbine. I Do Not approve of this proposed wind farm, especially this close to to Tri cities, Scout energy has done a very poor job with there pictures being provided falsely showing relativity to the denseness of population that will be effected as well as the urban growth areas effected. the draft EIS is something to be desired, hardly relative and overgenerlized to our area. My main concerns are the climate change created by the windfarm effecting our local agriculture and viticulture. wind inversions that exist already have spread herbicides over 300 miles in the 80s and 90's when aerial applications were permitted, i fear that the herbicides will again spread from applications due to wind inversions created by the windfarm. As well as the 120 miles of roads with herbicide laces soils blowing down on residents. The City of Kennewick has stated they cannot supply 250,000 gallons of water for road construction which leads me to believe scout will be permitted to drill a well or multiple wells, my concern with this is the state of our aquifers. in the last year, 10% of my neighbors have had to drill deeper wells due to wells drying up. who'll be responsible for these and other problems created by this wind farm? Im very disappointed in my voice as well as the voices of people in Benton and surrounded counties not being heard or even notified of this windfarm being pushed through. this should be a locally decided issue. residents here know what the environmental impact will be of this windfarm. there couldnt be a worse location. there are 20,000 washington residents within 5 miles of a windfarm statewide. if this windfarm is approved it will put 90,000 people within 5 miles of this windfarm, all in Benton County. That is quite the affected area for side effects of this windfarm. From noise and vibration causing underlying health issues to environmental issues of our eagle and hawk populations, loss of hunting ground, and so on. There is so much hype calling these turbines green, Germany has had more pollution than ever due to the greenhouse gases released from the wind turbine generators. the disposal of blades is abhorrent, the petroleum and coal needed to fabricate the blades and steel is hardly what i would call GREEN. This whole windfarm project running at full capacity (which they never do) is comparable to one turbine generator at one of the dams on the Columbia River. Todd Hue Michelle Hue Mattea Florea Joseph Florea	Land and Shoreline Use	On March 9, 2021, EFSEC issued an announcement for a Public Informational Meeting and Land Use Consistency Hearing on the EFSEC website and mailed the announcement to those on the interested parties distribution list, tribes, and EFSEC's general distribution list. Public Notice was published in Tri-City Herald for the SEPA Scoping on May 12, 2021 and the Scoping Notice was posted to the SEPA Register on May 14, 2021. An informational public meeting and land use consistency hearing were held on March 30, 2021, to inform the public about the Project, receive public comments, and review information regarding the Project's consistency and compliance with land use plans and zoning ordinances.	1.4.1	n/a
			Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation. New water rights are not part of the Application and are not assessed.	3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
andrea.grantham	1119347	Attached is a native hawk that hunts daily in the HHH and rarely can be seen to get a picture of. Christina Caprio NEPA Environmental Scientist	Wildlife and Habitat	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119354	I am against this wind farm for the following reasons; 1 There is no infer structure invented yet to move the generated power from this wind farm to another state. 2 We don't need more power generated. The present turbines at our local dams can generate all the power we need at 30% capacity 3. There won't be any local jobs to build this wind farm. The workers will come from Colorado or Montana. 4. The life expectancy of a wind turbine is 10 to 15 years. Once it is dead it will just remain there rusting away. 5. The turbines that will be used if this farm is approved won't even be made in America. None are!! John Archibald 2920 S Keller Pl Kennewick, Wa 99337	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. During construction of Phase 1, the Project will directly employ an average of 300 workers on-site with an estimated 62 percent of these positions expected to be filled by local workers.	4.16, and updated ASC	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
andrea.grantham	1119358	I am NOT in favor of this massive wind farm. It will be intrusive and destructive to the Tri Cities quality of life! Surely there are other less populated areas to install these huge windmills. Sincerely, Niki Hughey	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119363	While I appreciate efforts to develop alternate energy sources, this project is incredibly short-sighted. Besides just the ruination of the Tri Cities uninterrupted horizons, the following is all you need to consider in rejecting this project. 1)The new jobs they keep touting are only for the very few years it takes to assemble the wind turbines. Then only 20 permanent jobs will remain. Definitely not worth all the harm this project will do. 2)The turbines only have a lifespan of 35 YEARS!! Then what? The ugly non-functioning monstrocities will then still be standing there, ruining the landscape, contaminating the views, blocking agriculture and grazing. All for just 35 YEARS!! No one will come to take these horrible things down once they stop functioning. It will be way to expensive, and even if they did, what about the thousands of tons of concrete that will remain? It will never be removed! 3)If your reasoning for this location is because of the rumors of constant wind, you need to look at the facts. Because of climate change it no longer blows here nearly as much as it used to. If you want constant wind, shouldn't these be put on the coast where the wind blows 24 hours a day, 7 days a week? 4)Just for reference: I live in North Richland (Horn Rapids area) and from the top of my street I can see the wind turbines southeast of Kennewick which are 30 miles away!! So if you think they won't be that intrusive, think again!!	Socioeconomics	Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	3.16 and 4.16	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Nancy Richter	1119365	To whom it may concern: Everything about wind turbines is repugnant to me…the disturbance to land, view, quiet, darkness and wildlife. The construction process is long and disruptive, bringing noise, traffic delays and dust. I own property in the Horse Heaven Hills. The turbines will surely negatively affect property values.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119374	I am against the installment of the proposed Wind Turbines on Horse Heaven Hills Susan Lee Independent Advanced Skin & Color Consultant www.Marykay.com/susanlee03 509-942-8511	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119412	Jobs: The wind turbines will not provide additional jobs or benefit the economy. Any jobs preparing the sites and constructing the wind turbines will only be temporary. The craft workers are transitory and will move on to the next project once work in this area is done. Esthetics: I chose to live at the base of the Horse Heaven Hills for the wide-open views of farmland, natural sage grasslands and wildlife living within. The wind turbines will change the landscape from its current natural beauty to an industrial wasteland. The red lights at night will create major light pollution which will lower my property value. Wildlife: The Antelope population that has steadily increased since introduction to the Horse Heaven Hills. Their habitat has been a safe environment for the herd to raise young and thrive. I am concerned that the protected antelope population will be negatively impacted by the industrialization of their habitat. The avian and wildlife habitat will never recover. Thank you, Travers Bracy 509-521-8224	Socioeconomics	Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	3.16 and 4.16	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Wildlife and Habitat	The EIS includes pronghorn antelope as a Special status species. Impacts to pronghorn are discussed in Section 4.6 of the EIS.	4.6	n/a
andrea.grantham	1119423	I live too close to the area of the proposed massive, intrusive turbine wind project and I am NOT in favor of it. I am pleading with you to include my No vote against this project. Deborah Santo Pietro 2850 Kyle Road Kennewick WA 99338	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119426	The Horse heaven hills wind farm project should not be allowed to happen. it amounts to a very inefficient unreliable source of electrical power generation with a very large enviro mental foot print. It creates asthetic pollution that can be seen for miles not to mention the noise. It is a disater for wildlife and is directly in the path of migratory birds another energy source would be much better, at the very least it should be moved else where. Sincerly, Vince Shawver, West Richland	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications and others.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
andrea.grantham	1119429	To Whom It May Concern, I could not be more against having this horrific wind farm in our backyard. There are so many negative about this farm and yet no one cares about what the great people of Eastern Washington say about it. from the lack of integrity with the company that wants to build it, to the horrific views and destruction to wildlife, to the loss of future farm land, there is not one thing that resonates with so many in our community. Monte Ingersoll	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119431	To Whom it May Concern: I am definitely NOT in favor of the proposed turbine wind project in Horse Heaven Hills, Kennewick, Wa Thank you, Linda Engelhard	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119434	Our view from our home now towards Horse Heaven Hills. Though the wind mills may not be in direct view, I am concerned for all Tri Cities area when the Natural Skyline is obstructed with MANS machines . This is looking from our home towards Horse Heaven Hills in the Prosser direction. This much be moved.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
andrea.grantham	1119442	https://www.nationalreview.com/corner/wind-turbines-not-up-to-the-job-literally/	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119449	I am STRONGLY against the wind farm proposal. You MUST stop this project. I am against this project for numerous reasons, but key among them is the devastating impact to our native ecological systems and the direct violation of the WDFW protections offered to endangered species. In 1983, WDFW listed the Ferruginous Hawk as a threatened species. Over 60% of their population for WA state is within Benton/Franklin county's. Specifically, in the shrub-steppe areas and rocky outcrops of the Horse Heaven Hills. They stated in their 50 year protection plan, that areas critical to the hawks survival should NOT be tampered with. They have declined since that time and in 2021, we're officially declared endangered within Washington state. The area scheduled for development is critical for their survival. As the largest and most rare buteo hawks around, it is horrible to think that an unneeded project would rob our state of such a precious asset. They are very picky nesters and don't stand a chance if we take away some of their last observed nesting sites. The area overlooking the river is also protected under the Migratory Bird Act as part of the Pacific Flyway. This project will be directly in the path of hundreds of thousands of migratory birds that travel from the tip of North America all the way to South America every year. The loss to their populations can never be recovered. Windfarms across the states kill anywhere between 380,000 to 25.5 million birds each year in rough counts. Actual numbers can be 20 times higher in specific locations. Not to mention the bat deaths. We need pollinators, if we loose our native bat populations, we devastate even our crop production. This farm CANNOT be allowed where they intend to build it. The HHH are critical to our local and continental ecosystems. I vote NO to this project. -Stephanie Brubaker	Wildlife and Habitat	The EIS provides an asessment of potential project related impacts to wildlife, including bird and bat mortality, in Section 4.6	4.6	n/a
andrea.grantham	1119452	I OPPOSE the wind and solar farms that are being shoved down our throats. Our lovely hillsides to the south of me are already ruined with the windmills, ruining our once beautiful view. At night, all I see out of my living room window are blinking red lights! No one has proven to me that these windmills even produce enough electricity offset the cost, maintenance and lifetime. Shall we talk about how they are not even recyclable but buried? How green is that! Why do we not have the FINAL say in them being built in our area. We love our hilltops, desert lands and our unique environment! How many animals will die. How many birds and hawks will die. Why should our lifestyle be changed to benefit Western Washington and other States. We have an abundance of hydro-electricity being produced. We have a nuclear plant sending electricity to many states! I could live with intelligent small nuclear units, much better than the butt ugly wind and solar farms that are a waste of our tax dollars!!! Cheryl Stevens Pasco, Washington resident 36 years!!!	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119454	To Whom it may concern: I wish to add our STRONG OPPOSITION to this HHH Turbine wind Project. We feel this is a HORRENDOUS project to put in our back yard. The environmental impact statement does little to address the endangered wildlife that will be effected by this senseless project. Please add our names as to voting NO on this catastrophe. Thank you, Meredith M Steward George W Steward 2376 Delle Celle Drive Richland, WA 99354	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses				
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119464	The proposed Scout Wind Farm project would permanently block all future growth to the south of the Tri-Cities and yield no benefit for the Tri-Cities. Billions of dollars would be lost to Real Estate development. There are hundreds of geese and other wild birds that leave the river daily to feed in the Horse Heaven Hills area. They would be slaughtered by the Turbines. A guarantee must be made saying that the birds will not be harmed! Wind Turbines are poor power producers. European wind power cost has increased by a factor of 5, because of the turbine costs and the power needed to fill in the void. We have excellent and low cost Hydro-Power. We DO NOT NEED wind power! Life-time turbine costs would increase our electrical cost from this time forward. A total waste of our money! We should not be forced to pay for a company to burden us; so that they can make money from the subsidized power. We would get higher cost power and taxes to pay the subsidies. Turbines make noise, typically in low frequency for travelling sound. It could ruin our living conditions. The use of wind turbines will never reduce globle warming. We will never be able to measure any improvement from their use. Will the change of wind patterns change grape growing conditions? The visual change to the Tri-Cities would be damaging to our entire area, with lowered property values and limited growth potential. I believe that the State Government support for this project is simply, "It's the In Thing to do polictlically" regardless of the damage that it will do to the Tri-City Citizens. Solar Panels should be placed on existing building roof-tops; so as not to use virgin land. This whole project is a bad idea and would penalize the Tri-Cities and the State of Washington. Sincerely, Wallace G. Ruff and Margarete G. Fleming 4236 King Drive West Richland, WA 99353-9329 Phone: 509-967-5087	Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions.	3.8.1.2	
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	Project would supply renewable energy which is aligned with the State of Washington goal of making its energy supply carbon neutral by 2030 (Senate Bill 2116, enacted into law in 2019). Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. Lease payments to landowners would also generate annual benefits to the local economy over the expected 35 year operating life of the Project. The Project will pay taxes to Benton County. Decommissioning of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income.	3.16 and 4.16	n/a
			Vegetation	The EIS addresses impacts to shrub-steppe in Section 4.5 including direct loss due to permanent and temporary disturbance and indirect impacts such as habitat fragmentation and degradation. Applicant commitments and identified mitigation are provided in Section 4.5.2.4, which include offsetting for direct disturbance and mitigation measure such as noxious weed control and dust control to mitigate indirect disturbance. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat, including shrub-steppe, were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	4.5, 5.2.2	n/a
andrea.grantham	1119482	The size of the project in capacity is a reasonable amount. If wind turbines are not desired, then replacement with an equivalent amount of solar capacity should be reasonable	Agreement with the Project	Comment acknowledged.	n/a	n/a
andrea.grantham	1119486	My name is Janine Terrano and I am the CEO of Topia Technology. I am writing to the Energy Facility Site Evaluation Council (EFSEC) in full support of the Horse Heaven Clean Energy Center. I grew up in Spokane, Washington, and have spent a great deal of time in the Tri-Cities over the years. I have two sisters who live in the Tri-Cities and I enjoy visiting the many outstanding wineries in the area. As a person who has made a career in technology, I am excited about the ability to provide our region with 1,150 MW of green power through this new renewable energy facility. It combines wind, solar, and battery storage capabilities. The facility will be able to capture wind that peaks in the winter, solar energy that peaks in the summer, and store power for when it is needed the most. There is no doubt we need the energy. Most estimates indicate that we will need a minimum of 3,500 MW of renewable energy by 2027 to offset our dependence on coal and other fossil fuels. We have simply run out of time to listen to the old and tired arguments of those that do not consider the common good a project like this creates for the Tri-Cities and the entire region. In the technology industry you either innovate and adapt or you perish. We need to adapt and permit these types of energy projects, or we run the risk of falling further behind in responding to our climate change challenges and building a robust local economy for the betterment of all of Washington State prioritizing poor land use, planning, and building McMansions and having outdated views on renewable wind and solar projects will not build a resilient and robust local economy. I encourage EFSEC to look to the future, follow the data and science, and approve the Horse Heaven Clean Energy Center project. Janine Terrano	Agreement with the Project	Comment acknowledged.	n/a	n/a
andrea.grantham	1119490	The massive windmill project being proposed for the Horse Heaven Hills from about Findley to Benton City.is very intrusive and objected to by a lot of people. Why put it where it is opposed by so many people? The power is needed mostly in the Puget Sound area. So why not put the windmills there? And if you're bound & determined to put them in the Horse Heaven Hills, why not put them farther south where they wouldn't be visible from the Tri-Cities? Put a nuclear plant here and we'll ship the power to the Puget Sound area. But if you want windmills, then put 'em in your own back yard. Walt Gray Richland, WA	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119498	Please do not do this! I would be able to see the turbines from my home. I'm not sure how much noise I would hear, but the noise from much smaller closer turbines, which dry off cherry trees in the spring, blasts me out of bed in the middle of the night. Your proposed project would essentially destroy the quality of life and the property values in the Tri-Cities. We do not need the intermittent energy the turbines would provide. Put them near someone who does need the energy. I'm fine with hydro and nuclear but not wind! M.L.R. Young	Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Jan Link	1119528	Thank you for the opportunity to share my voice. We, as adults, are responsible for the future of our children. Is that not our most important task in life. To do anything less would be selfish. Everyone needs to do what is needed to make sure we have the electricity and power we need. Horse Heaven can help with this. Jan Link 186 N Waverly Place Kennewick, WA 99336 Please read the attached letter...two times....and picture the effect your decision will have 7 generations from now. Please copy and give to the people making the decision.	Agreement with the Project	Comment acknowledged.	n/a	n/a
andrea.grantham	1119539	I am writing to object to the Horse Heaven Hills wind farm proposal. If Washington was really concerned with renewable energy they would look at adding another Nuclear plant. Wind farms are notoriously unreliable. They produce 1/1000 the energy of a nuclear power plant and can only produce electricity in specific weather. Several studies have shown, for wind, the average power density — meaning the rate of energy generation divided by the encompassing area of the wind plant — was up to 100 times lower than estimates by leading energy experts. When taking into account the additional issues of turbine-atmosphere interaction and a rise in temperature, there is not a positive environmental impact, in fact it is a negative environmental impact. Not only are they a poor use of taxpayer money, but research has shown environmental impacts are minimized only when wind farms are located on the ocean. If Washington is looking to maximize their output, then another location needs to be used (the coast). The reality is that wind power is not a viable alternative, we should be using more nuclear power. I in now way support this proposal. Sincerely, Shanon Brown	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications and others.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1119545	As a resident of Benton County, I oppose the wind turbine project proposed for the Horse Heaven Hills. Not only will the natural landscape be grotesquely destroyed, but all of the communities will be forced to face the disruptive blinking turbine lights, increased fire risk and deal with the loss of property value these turbines will cause. A business owner in what the State of Washington deems "wine counrry" to drive tourism...this project will make our property unusable as an outdoor event venue. No one wants to wine tasting or get married with hundreds of gargantuan machines covering their line of site. Why destroy the tourism of what a significant wine destination when there are better locations. Sydnie Roberts Bella Vita Vineyards 509-378-0638	Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan. Impacts of Project lighting are discussed in Section 4.10.2.2.	n/a	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
andrea.grantham	1119551	Please register me for the subject meeting and send me a TEAM link for this public meeting on Feb 1 for the HHH Wind Farm Project. For the record - I am not in favor of this massive, intrusive turbine wind project as it is currently planned and evaluated by this DEIS. Please send me a TEAM link for this public meeting on Feb 1 for the HHH Wind Farm Project. Mark Morton 3262 Mt Adams View Dr West Richland WA 509 727 2929	General - opposition	Thank you for your comment; your concerns have been noted. The Teams link for the February 1, 2023 Horse Heaven EIS Public Comment Meeting was made available on the EFSEC website and project notices.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
andrea.grantham	1119562	I would like to provide testimony as part of the subject public meeting scheduled for February 1, 2023, 5:00 – 8:00 PM. In support of my public comments which will be brief and respectful of the "limited minutes" allowed, I am including the attached documents for EFSEC consideration. Thank you, Rick Dunn General Manager (509) 582-1281 Direct E-mail: dunnr@bentonpud.org	Energy and Natural Resources	The proposed Project meets the definition of an "alternative energy resource" that includes "wind" and "solar". EFSEC's review of the proposed Project is guided by RCW 80.50.010 which states that it is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change. The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities 1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
joan.owens	1120826	External Email Dear Director Sonia Bumpus, There is no climate change. It's a political hoax to take away more of our money on wasted projects. Sincerely, Steve McMillan 17713 Dunbar Rd Mount Vernon, WA 98273-4783 trnw8919@yahoo.com	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
andrea.grantham	1120860	Eastern Washington in the perfect place for wind turbines. We have the bare rolling terrain as well as wind. As most of the area is planted in wheat and other grains, the land can now have a duel use, and dual income. Yes, we will see the turbines afar, but mostly if we take a drive through the country's back roads. Yes, we can see some from Pasco, and other Tri-city towns; but so can we see new homes being built on the hillsides as well. Pasco and Richland have tall water towers; the area is full of cell tower (no complaints there, I don't want dropped calls). The real reason we need these turbines is that Global Warming is real. We are decades behind in our attempts to turn it around. The people complaining about these turbines are well enough off to turn their A/Cs down to 68 degrees. Our warming climate will soon bring pestilence and drought to the crops. We will be defenceless. The turbines are wanted by farmers that want a steady income; workers that want steady jobs. The fact that we in Eastern Washington are not using this power resource is the same as we are not eating all our wheat, or our apples and wine. I would love to see Scout do the job as proposed. Raymond Williams 3920 Road 105 Pasco, WA 99301	Agreement with the Project	Comment acknowledged.	n/a	n/a
joan.owens	1120869	External Email Dear Director Sonia Bumpus, Please examine more carefully the environmental impacts of the proposed Horse Heaven Hills Wind Project in Benton County. I support the project in principle but am concerned the current configuration may lead to adverse impacts to wildlife, specifically the Ferruginous hawk. It may also have negative impacts on wildlife travel corridors and landscape connectivity. Please explore alternative designs that will reduce and mitigate these types of concerns. I support the more specific and detailed recommendations outlined in Audubon's policy proposals regarding this project. Thank you Sincerely, Ms Nancy Sutton 7887 SE Banner Creek Ln Port Orchard, WA 98367-4550 pithy816@gmail.com	Wildlife and Habitat	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]], curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	4.6	Mitigation Measures HAB-1 will be updated to require any Corridor Mitigation Plan to include performance standards and measurements. Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.
andrea.grantham	1120907	Dear Director Sonia Bumpus, The Horse Heaven HIlls is a marvelous place. LOng range views, rolling hills and hollows, native vegetation in the wonderful places too steep to be farmed. There is a windfarm project proposed to go there, but it has no consideration of the impact to the land, the plants and animals, high flying birds and tiny evening primrose. We need to have environmental studies on how best to leave the ecosystem livable for the natural stuff that God put there. Changing things, leaving areas untouched, or mitigating the situation must be considered. Thank you for paying attention to all aspects of this proposed project. Kay Forsythe Sincerely, ms Kay Forsythe PO Box 1299 Ellensburg, WA 98926-1903 forsythe@elltel.net	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1120915	External Email I want to oppose this ongoing process. We at the Local level (and not just the landowner who leases/sells the site) should have the MOST say in this matter. Besides the view being changed from a natural form, animal life, ground vibrations, and mostly the fact that fossil fuels are still a part of this FAUX clean energy project., this is not providing energy to our immediate area. The so called clean energy is for sale to other regions while we get the negative side effects. We are still learning about this energy. There is more to be learned and more need to get the old parts recycled. PUT these in a place that is isolated from community viewing. WE get beautiful sunsets over this area and the skyline is a delight. WE DON"T need this energy here in Benton CITY. PLEASE stop and find another spot. It is not an impossible request. Ron and Paula Nolte 36604 N Flagstone Dr Benton City WA 99320	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1120917	External Email https://www.bloomberg.com/news/articles/2023-01-23/wind-turbine-collapses-punctuate-green-power-growing-pains	Public Health and Safety	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1120921	External Email https://www.indystar.com/story/news/2023/01/23/scrub-hub-why-do-wind-turbines-spin-others-stand-still/69815694007/ There are many times we have very high winds here. Well over 10 miles per hour.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1120925	External Email https://phys.org/news/2023-01-offshore-farm-noisybut-gadgets-marine.html Now we are not doing this in the ocean by our house but even more reason to consider all the animals underground and the effects as well as our many flying birds.	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
joan.owens	1120929	External Email 1. There is no infer structure to get the proposed wind farm energy to California or other states needing additional energy. In fact it hasn't even been invented yet. 2. Why do we need to build this farm when our local dams can only find uses for 30% of the power they are currently generating? 3. The wind farm turbines have an operating lifespan of 10 to 15 years. You can tell the dead turbines on existing wind farms, they are the ones not turning when others are. Will the dead turbines just stay there forever? 4. The turbines that will be used if this farm is approved won't even be made in America. None are!! 5. Don't be fooled into thinking that all kinds of jobs will be generated to build these monstrosities. The construction crews will be coming probably from Montana or Colorado . John Archibald Kennewick Wa 99337	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
joan.owens	1121014	External Email To whom it may concern : No more windmills in the south east Washington.	Visual Aspects, Light and Glare Wildlife and Habitat	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.10 4.6	n/a n/a
joan.owens	1121041	External Email Dear Director Sonia Bumpus, I am writing to ask that the Final EIS for Horse Heaven Hills Wind Project in Benton County take a stronger and more specific look at how the project can be designed to avoid impacts to the environment. The final EIS must include the following information and analysis to uphold our state's commitment to, and appreciation for, our wildlife and the connected landscapes they need. The final EIS must: - Identify specific design features, mitigation measures and associated performance standards that will avoid adverse impacts related to wildlife movement and habitat connectivity within the Project Lease Boundary and at the regional level. - Commit to how the proposed Project will avoid significant impacts to the Ferruginous Hawk population at the regional level by avoiding turbines within two miles of all documented nests and mitigating for direct and indirect loss of core and range habitat for all nests within six miles of the project. - Include an alternative for analysis that features an explicit design for and commitment to turbine siting and other project components that minimizes impacts to the state-listed species and wildlife connectivity. - Use the best available science to evaluate the magnitude and scale of impacts to birds due to turbine operation. The build-out of renewable energy in Washington can be achieved in a way that honors the legal and sovereign rights of Treaty Tribes and balances the needs of both people and wildlife. We look to this Council and its staff to provide the leadership needed to achieve this vision. Sincerely, Ms. Sandra Aseltine 2790 Tracyton Beach Rd NW Bremerton, WA 98310-2032 seaduckie@aol.com	Wildlife and Habitat	Section 4.6 of the Environmental Impact Statement (EIS) addresses potential impacts on wildlife and habitat resources, previously identified in Section 3.6, that could result from the Horse Heaven Wind Farm (Project, or Proposed Action) or under the No Action Alternative. Mitigation measure HAB-1 addresses impacts to movement corridors and requires the Applicant to place project components outside of wildlife movement corridors or else provide rationale to EFSEC. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measure based on specific impacts. Should the Applicant intend to site project components in a corridor, the Applicant must subsequently create a Corridor Mitigation Plan that demonstrates the implementation of effective mitigation to reduce impacts to wildlife movement. EFSEC will review and approve all Mitigated Plans prior to implementation, including a Corridor Mitigation Plan if one is warranted. Mitigation Measure HAB-1 will be updated in the Final Environmental Impact Statement (FEIS) in response to comments received to require applicant to create a Corridor Mitigation Plan, should one be required based on final project design, which: 1.Describes impacts to the corridor 2.Reduces identified impacts to the corridor 3.[NEW] Includes performance standards measured prior to and during project operation to document impacts have been mitigated such that there is continued wildlife use of corridor. Mitigation measure SPEC-5 addresses impacts specific to the Ferruginous Hawk and requires the Applicant to site infrastructure outside of a 2-mile nesting buffer. This requirement provides EFSEC with the ability to consider rationale from the applicant for placement of a feature and require additional measures based on specific impacts. It also provides EFSEC with the ability to restrict development within this 2-mile buffer. Siting within the buffer would require habitat compensation. The 2-mile nesting buffer is based on data received from Washington Department of Fish and Wildlife (WDFW) and other experts regarding core Ferruginous Hawk range. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, the FEIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action. Mitigation Measure WILD-1 builds on the applicant commitments to 2 years of post-construction monitoring of impacts to birds and bats. Mitigation Measure WILD-1 will be updated in the FEIS to provide clarity on the monitoring and reporting process. WILD-1 will be updated to read: Wild-1:Prior to initiation of Operation the Applicant would develop, in coordination with the TAC and approved by EFSEC, an adaptive management strategy to be implemented if bird or bat fatalities exceed mortality thresholds. The adaptive management strategy will include a description of mortality thresholds and additional mitigation measures to be applied if thresholds are exceeded. Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with EFSEC and WDFW and determine whether additional monitoring and mitigation measures outlined in the adaptive management strategy are necessary. Examples of adaptive management mitigation strategies that may be considered include altering the operation of the turbines (e.g. increasing the cut-in speed to above 5.5 m per second [Alberta Government 2013]), curtailing turbines at nights when bats are migrating). Mitigation strategies may be limited to groups of turbines based on the results of post-construction monitoring. The mitigation measure allows for continued monitoring and adaptive management of potential project related wildlife mortalities.	4.6	Mitigation Measures HAB-1 will be updated to require any Corridor Mitigation Plan to include performance standards and measurements. Mitigation Measure WILD-1 will be updated to provide clarity on the monitoring and reporting process.
joan.owens	1121080	External Email Download Attachment Available until Feb 27, 2023 Small Finley windmills seen from Eltopia. Christina Caprio NEPA Environmental Scientist Click to Download IMG_1166.MOV 0 bytes Sent from my iPhone	n/a	Attachment did not find	n/a	n/a
joan.owens	1121083	External Email Download Attachment Available until Feb 27, 2023 Tri City Skyline of existing Walla Walla and Finley windmills flashing at night on ridges. Enough is enough and allow some beauty and peace. Christina Caprio Click to Download IMG_1168.MOV 0 bytes Sent from my iPhone	n/a	Attachment did not find	n/a	n/a
joan.owens	1121087	External Email Finley windmills flashing. Christina Caprio Sent from my iPhone	Visual Aspects, Light and Glare	Comment unclear. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
joan.owens	1121149	Caprio Video 001 https://youtu.be/gSmCcOTQv3I	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121156	Caprio Video 002 https://youtu.be/ySSS_1DIcKA	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121157	Caprio Video 003 https://youtu.be/7RBeJGgZ4a8	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121161	Caprio 004 https://youtu.be/PNbGWzw1m4M	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121168	Caprio Video 005 https://youtu.be/ncO7xGTbNXw	General- video or photo	Submitted video/photo received.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
joan.owens	1121181	Caprio Video 006 https://youtu.be/gCaU_1dXFbQ	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121187	Caprio Video 007 https://youtu.be/x67e_XoWY2s	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121190	Caprio Video 008 https://youtu.be/VHshy6yOKWo	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121195	Caprio Video 009 https://youtu.be/P1sgQaODcO8	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121199	Caprio Video 010 https://youtu.be/VQ9HMALfMvI	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121204	Caprio Video 011 https://youtu.be/-QhlJ3Q9f8U	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121224	Caprio Video 012 https://youtu.be/9XOOtLtOczA	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121225	Caprio Video 013 https://youtu.be/AJ6Al9g_1pE	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121227	Caprio 014 https://youtu.be/vLDyzGMNjZI	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121229	Caprio Video 015 https://youtu.be/KA3m4lr9wm0	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121232	Caprio Video 016 https://youtu.be/VKLfxilPsow	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121236	Caprio Video 017 https://youtu.be/bBTQ1JacAhQ	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121242	Caprio Video 018 https://youtu.be/vna25sxF7Ek	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121243	Caprio Video 019 https://youtu.be/axjkPc5B03Q	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121253	Caprio Video 020 https://youtu.be/feBTUJgoCSU	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121256	Caprio Video 021 https://youtu.be/prym2wsM0Y0	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121261	Caprio Video 022 https://youtu.be/4YFbvvAMN-M	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121262	Caprio Video 023 https://youtu.be/Jv7s6lC-xoQ	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121263	Caprio Video 024 https://youtu.be/_DZ1jZj2Se4	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121268	Caprio Video 025 https://youtu.be/Ip3dgIEUWwA	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121270	Caprio Video 026 https://youtu.be/UBO9ESDAWAk	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121273	Caprio Video 027 https://youtu.be/ElaM0-b5xuA	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121277	Caprio Video 028 https://youtu.be/QX6g-xHoUJo	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121292	Caprio Video 029 https://youtu.be/pb3bwpiqL_A	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121294	Caprio Video 030 https://youtu.be/SyXNvX6HoWE	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121299	Caprio Video 031 https://youtu.be/slVyn_9zAqI	General- video or photo	Submitted video/photo received.	n/a	n/a
joan.owens	1121304	Caprio Video 032 https://youtu.be/0xyKGhZQ6qg	General- video or photo	Submitted video/photo received.	n/a	n/a
Karen Batishko	1090063	Attachment only	Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Vegetation	The EIS address indirect impacts from dust to vegetation in Section 4.5 for construction, operations, and decommissioning. Applicant commitments include a dust control measures during construction. Identified mitigation includes an Operation and Decommissioning Dust Control Plan. These mitigation measures result in the determination of no significant impacts to vegetation from dust.	Section 4.5	n/a
Carolyn A. Jones	1091762	Attachment only	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including songbirds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
City of Kennewick, W.D. McKay	1092339	Attachment only	Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	Section 3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
Anonymous	1092359	Attachment only	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS. As a final project layout was not available, the dEIS applied conservative assumptions to predict potential impacts. For example, the area of indirect (sensory distrubance) habitat loss was calculated as 0.5 miles from the micrositing corridor to account for various turbine options.	4.6	n/a
			Vegetation	The EIS considers each component of the Project (e.g., micrositing corridor, east solar field) separately in the impact analysis for vegetation. The potential impacts from each component on vegetation are described in Section 4.5. Impacts to shrub-steppe and other priority habitat are assessed based on the present Project plant and layout. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional mitigation measures. The Applicant is bound to the maximum disturbance provided in the Application to habitats. Any additional disturbance would be a deviations from the Application. A final As-Built Report is required, which would include final areas of disturbance to be used to calculate final offset requirements. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	4.5, 5.2.2	n/a
Curt Smitch	1092958	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Franklin County Democratic Central Committee	1094043	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jason Spadaro	1096700	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Sam Dechter	1098897	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
Benton County Democratic Central Committee	1099182	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Pam Minelli	1100589	Attachment only	Wildlife and Habitat	The Avian Use Survey (AUS) conducted by the Applicant documented small and large birds within a standard survey plot. The data was used to calculate an exposure index for species, which is a species-specific relative risk measure of turbine collision. The calculation is based on species abundance, time spent flying, and the proportion of flight height spent in the rotor swept height. An exposure index could not be calculated for species that fly low to the ground and may not enter the rotor swept height or species not observed during surveys. While an exposure index may not be available for each special status species, the dEIS assesses the potential impact, including mortality, on twenty one special status species with potential to occur in the Lease Boundary.	4.6	n/a
Citizen, Kathy T Dechter	1100708	Attachment only	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Protect our winters (POW)	1103757	Attachment only	n/a	Please refer to submission 1119107	Please refer to submission 1119107	Please refer to submission 1119107
Washington Green Hydrogen Alliance	1104072	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Pam Minelli	1104574	Attachment only	Wildlife and Habitat	The purpose of the TAC would be to provide scientific expert advice to the Applicant and EFSEC regarding final project layout and mitigation. The Applicant may suggest TAC members; however, the final composition would be at EFSECs discretion. Further, the TAC would not have the authority to approve Project components or plans. EFSEC would remain responsible for approval of plans and mitigation measures. The TAC mitigation measure will be updated to provide additional clarity regarding the role of the TAC	4.6	Update the TAC mitigation to provide additional clarity as to TAC role
Audubon Washington, a state field office of the National Audubon Society	1104648	Attachment only	n/a	Please refer to submission 1119045	Please refer to submission 1119045	Please refer to submission 1119045
Conservation Northwest	1104835	Attachment only	Wildlife and Habitat	The dEIS considers each component of the Project (e.g., micrositing corridor, east solar field) separately in the impact analysis for vegetation. The potential impacts from each component on vegetation are described in Section 4.5. Impacts to shrub-steppe and other priority habitat are assessed based on the present Project plan and layout. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional mitigation measures. Additional mitigation measures include a As-Built Report and Offset Calculation (Veg-4) and Detailed Site Restoration Plan (Veg-7). The As-Built Report and Offset Calculation would include a final calculation of all areas of disturbance which will be used to calculate final offset requirements. The Applicant has voluntarily included rabbitbrush shrubland at the temporary and permanent offset ratios of shrub-steppe. It also includes provisions to require offsets at permanent disturbance ratios if temporary disturbance areas are not successfully revegetated within the timeframe determined by EFSEC. The Detailed Site Restoration Plan would outline the revegetation plan for decommissioning. In addition, this would include provisions for adaptive management based on the revegetation following construction and a requirement for monitoring. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5, 5.2.2	No
			Vegetation	The EIS considers each component of the Project (e.g., micrositing corridor, east solar field) separately in the impact analysis for vegetation. The potential impacts from each component on vegetation are described in Section 4.5. Impacts to shrub-steppe and other priority habitat are assessed based on the present Project plan and layout. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional mitigation measures. Additional mitigation measures include a As-Built Report and Offset Calculation (Veg-4) and Detailed Site Restoration Plan (Veg-7). The As-Built Report and Offset Calculation would include a final calculation of all areas of disturbance which will be used to calculate final offset requirements. The Applicant has voluntarily included rabbitbrush shrubland at the temporary and permanent offset ratios of shrub-steppe. It also includes provisions to require offsets at permanent disturbance ratios if temporary disturbance areas are not successfully revegetated within the timeframe determined by EFSEC. The Detailed Site Restoration Plan would outline the revegetation plan for decommissioning. In addition, this would include provisions for adaptive management based on the revegetation following construction and a requirement for monitoring. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	4.5, 4.5.2.4, 5.2.2	n/a
WDFW - Michael Ritter Lead Planner: Solar and Wind Energy Development	1104882	Attachment only	n/a	Please refer to submission 1117635	Please refer to submission 1117635	Please refer to submission 1117635
Anonymous	1105237	Attachment only	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
		Attachment only	Wildlife and Habitat	Section 4.6 of the EIS provides an analysis on the potential impacts to wildlife from habitat fragmentation and wildlife mortality. Mitigation measures recommended in the EIS require the Applicant to collect additional information, apply buffers from sensitive features, and development mitigation plans. EFSEC would be responsible for reviewing and appoving Project layout and additional mitigation.	4.6	n/a
		Attachment only	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
		Attachment only	Cumulative Effects	An analysis of cumulative impacts is presented in Section 5.0. Section 5.2.1 provides the methodology used to analyze cumulative impact.	Section 5.0, Section 5.2	n/a
franklin county board of commissioners	1105787	Attachment only	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. Sections 3.16 and 4.16 present Socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities. The Project is not anticipated to result in increase in utility retail electricity rates.	3.16, 4.16	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Energy and Natural Resources	The proposed Project meets the definition of an "alternative energy resource" that includes "wind" and "solar". EFSEC's review of the proposed Project is guided by RCW 80.50.010 which states that it is the policy of the state of Washington to reduce dependence on fossil fuels by recognizing the need for clean energy in order to strengthen the state's economy, meet the state's greenhouse gas reduction obligations, and mitigate the significant near-term and long-term impacts from climate change. The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.2.3 Energy Facility Site Evaluation Council Role and Responsibilities 1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a

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From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
kennewick public facilities district	1106254	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
		Attachment only	Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
		Attachment only	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Kevin Leary-Soil Scientist/Hydrogeologist/Hydrologist	1106339	Attachment only	n/a	Please refer to Submission 1119047	Please refer to Submission 1119047	Please refer to Submission 1119047
Kenneth Spencer Jr	1106663	Attachment only	Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions. As noted in Section 2.1.2.3, the Applicant would comply with Washington Administrative Code (WAC) 463-72, Site Restoration and Preservation requirements. The Applicant submitted a preliminary Decommissioning Plan with the ASC for EFSEC's review and would submit an initial Site Restoration Plan to EFSEC at least 90 days before the beginning of construction.	3.8.1.2, 2.1.2.3	n/a
		Attachment only	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
		Attachment only	General - opposition	Thank you for your comments; your concerns have been noted. Please note the Proposed Project has not yet been approved.	n/a	n/a
Richland City Council, Terry Christensen, Mayor	1106712	Attachment only	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
		Attachment only	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations (determination of high impacts on most views within 5 miles of the proposed turbines) as well as strongly altering the area's landscape character.	4.10	n/a
		Attachment only	Air Quality	The air quality analysis consisted of two components: 1. a comparison of expected project emissions with regional emissions based on the most recent emissions inventory available 2. a computerized dispersion modeling assessment of the stationary sources (concrete batch plant and diesel generators) proposed to support construction. For the first component above, Richmond meteorological data were not used to complete this comparison. As such, the percentage comparisons noted apply irrespective of the location of meteorological data. For the second component, 5 years of surface meteorological data collected at the Tri-Cities Airport in Pasco, WA were combined with upper air data collected at Spokane, WA to complete the dispersion modeling assessment. These locations are the locations closest to the Horse Heaven project with existing, approved, model run-ready meteorological data with which to complete the dispersion modeling assessment.	4.3	n/a
Renewable Northwest	1107153	Attachment only	Wildlife and Habitat	Comment acknowledged. EFSEC has the authority to go above and beyond the guidelines that are created by other State agencies and can and should propose additional solid mitigation measures for each project, based on current scientific information and up to date knowledge of the existing conditions and potential project impacts.	n/a	n/a
Citizen, Jarold Strickler	1107385	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Cirizen, Justin Raffa	1107460	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1107600	Attachment only	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - opposition	Thank you for your comments; your concerns have been noted. The term "would" is used in place of "will" in the EIS since the EIS approaches the narrative with a "Proposed" Project. If approved, the Applicant would be required to comply with all mitigation measures and conditions set by the approving agencies. Plans such as wildlife and habitat restoration plan and revegetation and noxious weed control plan are available to public for review on EFSEC website.	n/a	n/a
Sam Dechter	1107607	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous	1107854	Attachment only	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			Socioeconomics	Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. This analysis did not identify negative economic impacts because of the project. Project impacts on agricultural lands and wine industry are discussed in sections 3.8 and 4.8.	3.16, 4.16 and Appendix 4.16-1	n/a
			Visual Aspects, Light and Glare	The visual analysis relies upon methodologies from the BLM and Clean Energy States Alliance including the concepts of viewer sensitivity and viewing distance as part of the determination of project impacts. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations (determination of high impacts on most views within 5 miles of the proposed turbines) as well as strongly altering the area's landscape character.	4.10	"For example, viewers at a scenic overlook would have a higher concern regarding changes in view because in this case the landscape would be viewed for a long duration and the view is integral to its use, compared to motorists on a non-scenic designated highway, in which landscape is viewed for a shorter duration and is not the focus of the viewer's activity"
			General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
Clean & Prosperous Institute	1117852	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
TC Cares and Save Our Ridge	1118996	Attachment only	n/a	Please refer to Submission 1107593	Please refer to Submission 1107593	Please refer to Submission 1107593
Rick Dunn, General Manager of Benton Public Utility District (PUD)	1119051	Attachment only	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
Anonymous	1119341	Attachment only	Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
		Attachment only	Water Resources	The elements of (i) surface water movement/quantity/quality; (ii) runoff/absorption; (iv) groundwater movement/quantity/quality from WAC 197-11-444 are addressed under Section 3.4 and 4.4 Water Resources. The Clean Water Act is the responsible authority of the US Army Corps of Engineers. The Applicant has included provisions for a Joint Aquatic Resource Permit Application (JARPA) submittal, which provides a consolidated permit application process for federal, state, and local permits for construction and development activities near aquatic environments. In addition, the Applicant has included the application for a Construction Stormwater General Permit through the Washington Department of Ecology. Laws and Regulations relevant to water resources is provided in Table 4.4-3.	Table 4.4-3	n/a
Anonymous	1119344	Attachment only	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2 of the EIS.	4.8.2	n/a
			Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
Linda Leman, City of Benton	1119370	Attachment only	Socioeconomics	Comment letter acknowledged.	n/a	n/a
Benton City	1119372	Attachment only	Socioeconomics	Sections 3.16 and 4.16 present Socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities. Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. During operation, lease payments to landowners would generate annual benefits to the local economy over the expected 35 year operating life of the Project. Also, the Applicants will pay taxes to Benton County. In summary, the Proposed Action would generate local jobs and tax revenue. As a result of these benefits, the Project is not anticipated to have adverse impacts on the study area's economic conditions.	3.16 and 4.16	n/a
		Attachment only	Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
		Attachment only	Public Health and Safety	Recommend adding mitigation measure to shut down turbines in the event of fire to allow fire suppression aircraft access.	4.13.2.4	Add mitigation measure to shut down turbines in the event of fire to allow fire suppression aircraft access.
		Attachment only	Visual Aspects, Light and Glare	Additional viewpoints and visual simulations have been included in the Final EIS including an additional KOP in Benton City and from I-82 located less than 1 mile from the closest wind turbine. Additional mitigation including potential turbine removals have been proposed by the Applicant with additional turbine removals to be considered by EFSEC, during their project review process, to reduce impacts on visual resources.	4.10	New simulations included in updated analysis in the Draft EIS including one from Benton City and one from I-82. Applicant proposal to reduce turbines and other project infrastructure has been analyzed in the FEIS.
		Attachment only	Wildlife and Habitat	Additional clarity will be added in the FEIS to describe potential bird and bat mortality rates. Mitigation measures in Section 4.6 of the EIS require the applicant to site turbines outside of sensitive areas such as core ferruginous hawk habitat and migratory corridors. Where infrastructure is required within these areas, the Applicant would be required to develop additional mitigation, such as curtailing turbines and offsetting, to address impacts. Mitigation measure Wild-1 will be updated in the dEIS to provide clarity regarding how additional mitigation measures will be considered and applied to respond to bird and bat mortality. This could include changing cut in speed during bat migratory periods. Painting blades was considered as a mitigation measure during development of the dEIS; however, FAA regulation require that blades are painted white.	4.6	Update description of bird and bat mortality rates.
		Attachment only	General - Question for EFSEC	Under WAC 197-11-455, any person or agency shall have thirty days from the date of issue in which to review and comment upon the Draft EIS. Upon request, the lead agency may grant an extension of up to fifteen days to the comment period. In accordance with EFSEC Notice of issuance of Draft EIS, issued on December 16, 2022, the Draft EIS published publicly on December 19 on EFSEC website and public were invited to submit their comments related to the Draft EIS, Project, and/or affected resources by February 1, 2023, which represents the end of the 45-day commenting period (30 days public comment period plus fifteen days of extension).	n/a	n/a
Rick Dunn, General Manager of Benton Public Utility District (PUD)	1119564	Attachment only	n/a	Please refer to Submission 1119562	Please refer to Submission 1119562	Please refer to Submission 1119562
Anonymous	1120942	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Jacob Devries	1121158	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jeff Leblanc	1121159	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Brice Cullobun	1121160	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Matt Chapman	1121162	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Vincent Marchi	1121164	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
James Rickman	1121165	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anthony Simpson	1121167	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Howard Rickf	1121170	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mike Keith	1121174	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Arturo Birreceta	1121176	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Justin Salling	1121178	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jim Sommerlund	1121180	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1121184	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ederak	1121188	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lorraine K	1121189	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Loura Keykendall	1121191	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Damil Keykendall	1121194	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Andrew Delatgup	1121196	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Gunnar Vabiper	1121197	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Rylan Grimes	1121241	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nolan Galleyos	1121245	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Louis Morfin	1121246	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mcelcelyn Jennigs	1121251	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nilu Myles	1121274	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Brian Cisheros	1121279	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mike Mitchell	1121284	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nancy Mitchell	1121286	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Melinda Sommerlund	1121288	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Hector Ortiz	1121290	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1121293	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1121295	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lanee Fox	1121296	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ken Marin	1121298	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Marry Elliay	1121300	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jason Huels	1121301	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nathan Hicks	1121303	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mario Uvalle	1121305	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Arthur B	1121306	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Felipe Auziak	1121309	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Charlles Eliuger	1121311	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Richard Stelter	1121312	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joe Dunn	1121330	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Pete Waller	1122059	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kimberlly Bell	1122062	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jimmy Tyler	1122063	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Noel Macias	1122065	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Michelle Fox	1122067	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Stephen Shikeskovosky	1122071	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Moses Torrescano	1122073	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1122076	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Robert Bryson	1122078	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Patrick Mehhan	1122080	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Bud hantley	1122082	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ryan Sims	1122083	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Richard Glazier	1122085	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cisco Elsuezabel	1122087	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jermine Allen	1122088	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jonah Richardson	1122094	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Anonymous	1122096	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Russ Dugger	1122097	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ossiel Martinez	1122098	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1122100	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
James Thrift	1122101	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Thomas Blakeny	1122102	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1122105	Attachment only	n/a	Please refer to submission 1109630	Please refer to submission 1109630	Please refer to submission 1109630
Jobette Eby	1122107	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Barbara Tweiten	1122110	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ira Johnson	1122112	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications and others.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
David Klees	1122114	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Warren hughs	1122117	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tony Orzoo	1122119	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jason Hurd	1122120	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joel Obedorfe	1122122	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tyler Gales	1122133	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1122136	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Rom Nultluren	1122138	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kurtis Hickey	1122139	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Sh Shipps	1122148	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Enola Thomas	1122149	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ventura Rodriguez	1122150	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Frank Verduzio	1122151	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
K. Kelly Kaloi	1122155	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Matthew Passaez	1122156	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anthony Swift	1122160	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Garry Rader	1122163	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tim L. David	1122164	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dave King	1122165	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Greg Gales	1122168	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Michael Gohee	1122173	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Danny Baer	1122175	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Taylor Smith	1122180	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jesus Mesia	1122182	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
James H. Ford	1122185	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ann Marie Ferriole	1122188	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Audubon Washingotn	1122191	Attachment only	n/a	Please refer to submission 1111492	Please refer to submission 1111492	Please refer to submission 1111492
Arron Palomarez	1122193	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Doug Knisley	1122195	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Fred Reed	1122196	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ryan Faeppel	1122198	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Patrick Hunt	1122200	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jason Hemperly	1122201	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kit Ayers	1122202	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nathan Hunt	1122203	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Garich Earley	1122204	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
David E Oerton - EE Overton	1122205	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jan Link	1122231	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mary R smith	1122232	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Gary Wooden	1122234	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
	1122235	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Allen B. Simmelink	1122237	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Lower Columbia basin Audubon Society	1122238	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS. An Acronym Table is included after the Table of Contents. The section is labeled "ACRONYMS AND ABBREVIATIONS ".	n/a	n/a
			Chapter 2 - Proposed Action and Alternatives	The action is for "a private project on a specific site." The agency is only required to consider a no-action alternative and onsite alternatives. Analyzing the Project as a whole allows the interpretation of the most probable worst-case scenario, while providing the impacts at the component level. This methodology allows the council to identify components that have higher impact than others. The council has the authority to approve or deny any single component of the Project, including individual turbines or solar arrays that would lead to a higher impact than others. The Council's statutory authority is contained in Chapter 80.50 of the Revised Code of Washington (RCW). Using this methodology, this Final EIS is inclusive of any number of design and construction alternatives to the Applicant's Proposed Action.	2.0	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Wildlife and Habitat	ES-24 The Migratory Bird Treaty establishes protection for migratory bird species by prohibiting the taking, including incidental take, of migratory bird species, including a bird, nest, and egg. This includes incidental take, which is the mortality of a bird or egg that occurs incidentally during an allowed action, such as land clearing. Risk of incidental take associated with construction increases when those activities occur during the nesting season. Mitigation measures Wild-8 and Wild-9 are proposed to reduce the risk of incidental take. Wild-8 would require the Applicant to establish setback buffers around raptor nests and develop a Raptor Nest Monitoring and Mitigation Plan to address variance from this requirement. Wild-9 requires the Applicant to develop additional mitigation measures if vegetation clearing or grubbing cannot avoid the nesting period to reduce the risk of incidental take. These measures could include pre-clearing surveys. This mitigation measure is expected to reduce the risk of incidental take during clearing or grubbing within the nesting period. ES-50 Based on the current project layout, Project infrastructure could interact with modeled movement corridors rated as medium to high. These models were developed based on an aggregate of information from several focal species (e.g. habitat concentration areas, landscape integrity, and existing barriers to movement); however, have not been verified through field based studies. Table ES-3a rates the impacts of Project construction while ES-3b rates the impact of Project operation. The impacts to modelled movement corridors are expected to be of low magnitude based on the definitions provided in Table 4.6-2 (low is defined as an "incremental change may be measurable and could result in minor influences on short term viability of wildlife populations…"). Further the impact is considered confined as the direct change to these corridors will occur within the Lease Boundary. Table ES-3b rates the impacts of Project operation on modelled corridors as Medium as the operation of the Project could result in a change that results in changes to the population of shorter and longer periods of times but remains below levels of impact that could exceed the resiliency and adaptability limits of the population. ES-55 Characterization of impacts, including magnitude, has been conducted per project phase using definitions provided in Table 4.6-2. The magnitude of impacts to sagebrush sparrow and sage thrasher during construction was characterized as low as the activities during this phase of construction are not predicted to result in a clearly defined population change; however, the magnitude of the impacts associated with Project operation on these species is rated as Medium as they could result in "change that could result in changes to the population over shorter and longer periods of time"; although these changes are not expected to exceed the resiliency of the population given available data on species declines (See Section 3.6). ES-67 Operational impacts to modelled movement corridors are rated as medium based on definitions provided in Table 4.6-2. The magnitude was rated as medium as it is predicted that Project operation could result in a distinguishable change in populations but not exceed the adaptability or resiliency as the Project is not expected to exclude wildlife use of this area. Recommended mitigation measures were developed to address impacts to corridors, namely Hab-1, which requires the Applicant to locate infrastructure outside of modelled corridors and develop a mitigation plan including additional measures to reduce impacts. The plan would be reviewed and approved by EFSEC.	4.6	n/a
			Vegetation	The Hanford Site Biological Resources Management Plan (DOE 2017) was prepared for the Hanford Site Boundary and is applicable to lands within this area. The Hanford Site Boundary is located north of the Project Lease Boundary and includes the Hanford Reach National Monument and central Hanford that are managed by Department of Energy (DOE). The purpose of the Hanford Site Biological Resources Management Plan is to provide a consistent approach to managing the site's natural resources and DOE is responsible for applying the Management Plan within portions of the Hanford Site managed by DOE. As the Project Lease Boundary is not within the jurisdiction of DOE, nor within the Hanford Site, this management plan does not apply. The offset ratios within the EIS are based on offset ratios provided in the Wind Power Guidelines (WDFW 2009) and based on consultation among WDFW, the Applicant, and EFSEC, where offset ratios for the various habitat types within the Project area were agreed upon. This included an greater offset ratio applied to rabbitbrush shrubland where permanent and temporary disturbance occurs, recognizing that this habitat type is an early seral shrub-steppe ecosystem. This is consistent with the application of habitat offset ratios applied to similar combined wind and solar projects in the area.	Section 4.4.3	n/a
Scott B	1122250	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Tom & Marlyn Rees	1122252	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
David Carstens	1122254	Attachment only	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
Janet O'Neil	1122256	Attachment only	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
Jan Nilfson	1122258	Attachment only	General - opposition	Comment acknowledged. For analysis of potential project impacts on visual aspects, tourism and recreation and proposed mitigation measures refer to respective chapters (e.g., Sections 4.10, 4.12). For information on positive benefits of the project refer to project background and socioeconomics section (section 4.16).	n/a	n/a
Lary Wilkenson	1122264	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Gary L. Moore	1122265	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
Karen Batishko, Past Precinct Committee officer	1122267	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
	1122269	Attachment only	Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2.	4.8.2	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Noise and Vibration	The wind turbines will generate ground vibrations at such low levels (less than 10^{-6} meters/second at 1 kilometer [0.6 miles]) that their impacts will be negligible. (Llavero Hurtado et al., 2017)	4.11 (Ground Vibration, LFN)	Revise FEIS to include LFN and ground vibration attenuation and the following source: (Llavero Hurtado et al., 2017) Field monitoring and analysis of an onshore wind turbine shallow foundation system Jesús González-Hurtado, Pengpeng He, Tim Newson & Hanping Hong Geotechnical Research Centre, Department of Civil Engineering, Western University, London, Ontario, Canada. Melanie Postman & Sheri Molnar Department of Earth Sciences, Western University, London, Ontario, Canada
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy. The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand	n/a
			Public Health and Safety	Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed. Ice throw is caused when ice accumulates on turbine blades during cold wet temperatures followed by an increase in temperature that causes the ice on the rotor blades to thaw. If the blades are stationary at the time of the thaw, the ice will fall below the turbine. If the ice begins to thaw when the blades are rotating, ice from the blade may be thrown from the turbine. Ice throw only has the potential to occur under specific weather conditions. Using specifications from the turbine manufacturer, a safe distance from a turbine with respect to ice throw can be calculated using the following formula: 1.5 X (hub height + rotor height) (Tammelin et al. 1997). Using the largest turbine model of the two provided for Turbine Option 1 by the Applicant in the ASC (GE 3.03 MW Turbine), this safe distance would equate to 1,087.5 feet. Using the largest turbine model of the two provided for Turbine Option 2 by the Applicant in the ASC (SG 6.0 MW Turbine), this safe distance would equate to 1,401 feet. The actual throwing distance of the ice fragments will vary based on many variables not included in this calculation, including rotor azimuth, rotor speed, local radius, ice fragment size and weight, and wind speed. The Applicant has stated that no turbine towers would be sited within 1,250 feet of a residence and BCC 11.17.070(q)(2) requires turbine towers to be sited at least 1,640 feet from dwellings not located on the same parcel. The likelihood of ice throw hitting any residence, other property, worker, or member of the public is low because of the specific weather patterns required and the fact that ice would need to travel at a specific trajectory a long distance from the turbine.	4.13.2.2	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Kathy Dechter	1122270	Attachment only	Wildlife and Habitat	Impacts to wildlife, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
William and Laura Wilson	1122272	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Nancy R	1122274	Attachment only	Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	3.16 and 4.16	4.16 - Discussion of Project impacts on property values
International Union of Operating Engineers	1122279	Attachment only	Agreement with the Project	Comment acknowledged.	n/a	n/a
City of Kennewick	1122280	Attachment only	n/a	Please refer to submission 1085458	Please refer to submission 1085458	Please refer to submission 1085458
City of Kennewick	1122282	Attachment only	n/a	Please refer to submission 1092339	Please refer to submission 1092339	Please refer to submission 1092339
	1122283	Attachment only	Air Quality	The Harvard study of 0.24 degrees Celsius warming is theoretical model that is based on the assumption that one third of the continental U.S. is covered with enough wind turbines to meet present-day U.S. electricity demand. The Horse Heaven project is a minuscule fraction of the total area included in the Harvard estimate and even if the modeled result were true, the relative magnitude of the purported temperature change would not be expected to result in a measurable change in local climate conditions.	4.3	
			Vegetation	The EIS provides a comprehensive assessment to shrub-steppe in Section 4.5 including impacts from temporary and permanent disturbance in all phases of the project and potential indirect impacts. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional recommended mitigation measures. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5 and 5.2.2	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility.	1.3 Purpose of Proposed Action	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. An evaluation of down winder effects resulting from the Project will be added to the FEIS.	4.13.2	Provide evaluation of "down winder" effects resulting from Project construction, operations, and decommissioning.
Charles Kaleta	1122285	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Florence Harty	1122286	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Patricia Bryant	1122287	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Connie Nelson	1122288	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lehman Holder	1122289	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joy Marley	1122298	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Janet Swihart	1122301	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Karen Genest	1122302	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mark Hughes	1122303	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
David Scheer	1122304	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ursula Mass	1122306	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dan Freeman	1122307	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jason Weinstuck	1122325	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Gregry Loomis	1122327	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Gerald Salais	1122331	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Linda L'Esperance	1122333	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nancy Kerwin	1122337	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Richard Frye	1122342	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dale Walter	1122344	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Sandra Peterson	1122345	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Diane Diprete	1122346	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Barbara Bower	1122349	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Rae Pearson	1122350	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mahira Zook	1122352	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Rosalie Beer	1122354	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Arthur Miller	1122356	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jennifer Larsen	1122359	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cynthia Steussy	1122362	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nancy Bowden	1122363	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Robert Jensen	1122364	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ferederick Wepfer	1122365	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jennifer Coble	1122366	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joan Rahbar	1122368	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joann Tryfon	1122370	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ken Benoit	1122443	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
George Morgan	1122444	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Melody Reasoner	1122447	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Holly Graham	1122448	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Bonny Jean Austin	1122452	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Bryan Goffe	1122453	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Paula Allison	1122454	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jason Mcdermatt	1122455	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Juliana Lave	1122456	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Augastia Elias	1122459	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kristi Hanziker	1122461	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Olga Mill	1122463	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Pricilla Martinez	1122464	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
April Poirier	1122465	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cheryl Sanders	1122467	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Alfred Colter	1122470	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Claire Yurdin	1122473	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cory Dawsu	1122474	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jay Moyer	1122475	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Rick Poor	1122476	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Louis Brigman	1122477	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Steven johnson	1122478	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Thomas Selley	1122479	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
David Varney	1122480	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anonymous	1122482	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Christopher B	1122483	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Chrystyne Bratten	1122484	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cliff Hansen	1122485	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Elaine Root	1122486	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joe Nichols	1122487	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Patricia Marshall Fisher	1122489	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Leanne McMurrian	1122496	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
James Nevess	1122498	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Steve Redman	1122500	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Renee Fife	1122502	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Diana Williams	1122504	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mike Conlan	1122506	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Barbara Laudan	1122509	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Deidre Cochran	1122510	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
M Forman-Mason	1122513	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
James Brumback	1122516	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Karen Ramey	1122517	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Michael Heaton	1122519	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ellen Prior	1122569	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joseph Franetic	1122570	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Margie Jensen	1122572	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Quentin Reuer	1122574	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Catherine Madole	1122575	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
April Nimick	1122576	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dolores Segger	1122577	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Elizabeth Rosenthal	1122580	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Greg Ballard	1122593	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tara Sparkman	1122595	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
David Stetler	1122597	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Virgine Link-New	1122600	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Margaret Woll	1122604	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Annet Skyelley	1122608	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Greg Spe	1122609	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jean Jensen	1122611	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Brigetta Johnson	1122612	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ms. Lasley	1122613	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Leslie McClure	1122615	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Diana Covington	1122616	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Barry Hutchinson	1122623	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dwight Pardue	1122624	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dean Rhodes	1122628	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Drew Alexander	1122636	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Nicholas Quintana	1122644	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Duncan Alger	1122648	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lyle Smith	1122649	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Joy Wooldridge	1122651	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Raymond Hayes	1122652	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Christina Davis	1122653	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lori Koon	1122654	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Christina Eberle	1122655	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Shemayim Elhoim	1122660	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ken Mincin	1122663	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tatiana Zolotareva	1122666	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Chris Guillory	1122668	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jeramie Zerger	1122669	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Michael Siptroth	1122670	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Michael Siptroth	1122677	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Frances Jarrel	1122679	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Candle Derrick	1122680	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Carla Rei	1122681	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Peter MastenBroek	1122682	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Shannon Markley	1122685	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lorraine Hartmann	1122689	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Gerry Flaten	1122692	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Wisinyer Austin	1122694	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kevin Harder	1122696	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
William Simpson	1122698	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Besia Lukos	1122702	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Josh Graham	1122704	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kathie Grignon	1122706	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Sandra Robison	1122708	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Katharine D Clark	1122713	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Bettina Binder	1122714	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kelly Tansey	1122719	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cigdem Capan	1124835	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Paula Shafransky	1124837	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Terry Hogan	1124839	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Melody Goad	1124841	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Marc Samason	1124844	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Sandra Crider	1124846	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Pamela Harris	1124850	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Michael Leff	1124851	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Keith Van Meter	1124852	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Chris Allan	1124854	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Richard Grassl	1124856	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lavonne Paul	1124857	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Sonja Miner	1124859	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Susan Montacute	1124860	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ellen Madsen	1124867	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Frank Puckett	1124869	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kc Young	1124870	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
homas Faurie	1124872	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Marilyn Overton	1124873	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Patrick Allen	1124874	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Hayley Mills-Lott	1124876	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Heather Sparks	1124879	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Deanna Peters	1124882	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Laurie Burns	1124885	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ella Valdez	1124887	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
McIntosh Scott	1124889	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jill Timm	1124890	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Anna Morrison	1124891	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tom Godbold	1124892	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Hudson Mann	1124893	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kasko	1124894	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cody Fackiell	1124897	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Saralyn Beckius	1124898	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Marvin Foland	1124899	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kathryn Wrede	1124900	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Diana Hoffmann	1124901	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kris Moyer	1124902	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Victoria Rangel	1124904	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Erin Shirey	1124907	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mark Zetterberg	1124909	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Carol Hildenbrand	1124920	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Asko Hamalainen	1124921	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
David Chaney	1124923	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
John Kaiser	1124924	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Alice Nicholson	1124926	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ali Williams	1124927	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Charlene Davis	1124931	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Hache Marlene	1124933	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Delia Gerhard	1124934	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Margaret Alva	1124935	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jerry mith	1124936	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jill Feuerhelm	1124938	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
David Brooker	1124941	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Cyndykay Webster	1124943	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Susan Marret	1124945	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ronald Gardiner	1124946	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mark Freeland	1124949	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Linda Taylor	1124951	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Kimberly Rex	1124952	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Marylin Mosley	1124955	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Carolyn Cleaves	1124957	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
William Sherertz	1124960	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Eileen Perfrement	1124963	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Tina Minjares	1124966	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Maureen Knutson	1124967	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Susan Olson	1124971	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Larry Emley	1124973	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Daryl Bulkley	1124974	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
June Macarthur	1124975	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Aubrey Edwards	1124976	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dean	1124978	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Carter Farmer	1124979	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Ben Wildman	1124981	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Karen Hunter	1124985	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Mary Hanson	1124987	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Marjorie Sterling	1124988	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Barbara Painterwondra	1124989	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Todd Keyoth	1124993	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Jerri Ostendorf	1124994	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Faye Bartlette	1124996	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Steve Gaulke	1124998	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Siobhan Peterson	1124999	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Robin Harper	1125000	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Michelle Fairow	1125001	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Shelly Blazich	1125002	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Leona Ansley	1125003	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Shari Hamilton	125004	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Dorethea Simone	1125005	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Sue Laird	1125006	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lorraine Lewis	1125007	Postcard	Agreement with the Project	Comment acknowledged.	n/a	n/a
Bonnie Hallet	1125008	Attachment only	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
??	1125011	Attachment only	n/a	Please refer to submission 1100689	Please refer to submission 1100689	Please refer to submission 1100689
Franklin County	1125013	Attachment only	n/a	Please refer to submission 1105787	Please refer to submission 1105787	Please refer to submission 1105787
Sue Frost	1125014	Attachment only	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions.	3.8.1.2	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a
Margaret Hue, Decide Locally	1125018	Attachment only	General - opposition	Thank you for your comments and petition. It has been received and acknowledged and will be considered for the adjudication process.	n/a	n/a
			Wildlife and Habitat	The EIS assesses the potential impacts to wildlife, including birds, ferruginous hawk, migratory birds, and sandhill cane in Section 4.6. Impacts considered included habitat loss (direct and indirect), mortality (e.g. from collisions with turbines), barriers to movement, and habitat fragmentation. Section 4.6 also provides recommended mitigation measures intended to reduce potential impacts to wildlife.	4.6	n/a
			Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Impacts of shadow flicker resulting from the Project, including health impacts, are discussed in Section 4.10.2.2. Impacts of Project lighting are discussed in Section 4.10.2.2. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
Applicant	1125021	Attachment only	n/a	Please refer to submission 1102200	Please refer to submission 1102200	Please refer to submission 1102200
Dave Kobus	1131267	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 23SPEAKER KOBUS: Thank you for the opportunity 24to present comments. This is Dave Kobus -- D-A-V-E, 25K-O-B-U-S -- and I'm speaking for the applicant as well as a 1local resident. 2So this DEIS demonstrates that sufficient analysis 3has been conducted by the applicant and EFSEC to confirm 4that with appropriate mitigation, the project's 5environmental impact does not pose significant detriment and 6is compatible with the agricultural character of the county, 7as it is located in the land use types specifically 8recommended by the Washington Department of Fish and 9Wildlife wind power guidelines. And the analysis didn't 10stop with our application, as the applicant has continued to 11analyze special species impacts and has provided the best 12available science to justify development plans. 13The applicant's comments on the DEIS generally 14identify where corrections must be made, comments to improve 15clarity and recommendations for enhancements, and we have 16submitted those comments in writing. However, several 17concerns have been highlighted for consideration that we 18believe do not meet reasonableness and attribution of 19impacts, tests in SEPA or reasonably align with the wind 20power guidelines. 21In general, the applicant believes that some of 22the mitigation measures exceed established precedent and 23several must be reconsidered. We provide justification for 24those we feel should be removed for the reasons I just 25noted. 1The applicant appreciates the effort that was 2provided by EFSEC staff and independent consultant to, in my 3view, leave no stone unturned in the DEIS preparation and 4review activity. The need for clean energy projects such as 5this is recognized nationally by the state and by the 6region.	General - Question for EFSEC	Comment Acknowledged. All applicant comments received and were responded to under sumission 1102200	n/a	n/a
MCKAY	1131273	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 8SPEAKER MCKAY: Thank you. 9Scout requested that Kennewick supply water to 10them and was later notified by the City of Kennewick that 11they would not be providing water to them. They were denied 12because they were out of -- outside city limits and also the 13urban growth area. Because of the vast amount of water 14requested, in a year of drought, there was a high 15possibility that water would have to be limited to city 16residents to fulfill the commitment to Scout. 17Since the City of Kennewick's notification to 18Scout they have not modified their application, nor notified 19the public of what their source of water would be. As far 20as we have been able to determine, they still have not 21revealed what their source of water will be. 22Governor Inslee's comment including -- excuse me. 23Let me back up. 24While attending a UN climate conference in Egypt 25in November 2022, Governor Inslee was quoted as saying: 1Governments will have to overcome nimbyism, 2including in Washington, to achieve clean energy goals. 3He went on to say: 4Regulatory reforms are needed to prevent local 5opponents from delaying projects. We've got to make 6decisions, and this will be controversial. We have to 7confront it. We have to succeed. Unquote. 8However, it's important to note that Governor 9Inslee's words are the polar opposite in what was promised 10in the Washington 2021 State of Energy Strategy, SES, which 11states: 12Public and community participation is important to 13ensure energy policy is informed by local knowledge, meets 14local needs and is viewed as legitimate by the local 15community. Additionally, community and community members 16must have a seat at the table in designing programs and 17selecting projects.	Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	Section 3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
John Cowling, deputy public works director for the City of Kennewick	1131277	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 8SPEAKER COWLING: Good evening. John 9Cowling, J-O-H-N, C-O-W-L-I-N-G. 10Good evening. I am the deputy public works 11director for the City of Kennewick. And just following up 12on the mayor's comments, I've been the primary contact with 13Scout Clean Energy as it relates to the use of Kennewick 14water for this project. 15As Mayor McKay indicated, Kennewick will not be -- 16or cannot provide water for this project. Specifically, the 17Kennewick Municipal Code prohibits provision of water 18outside the city limits or urban growth area. 19I'd like to add that this information, as well as 20a section of code, was provided to Scout Clean Energy in May 21of last year. So we felt it's important that EFSEC know and 22the draft EIS did not identify Kennewick as a potential 23water source for construction and ongoing operations of this 24project due to our inability to provide water with our 25current municipal code. 1 Thank you	Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	Section 3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
Wendt	1131279	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 12SPEAKER WENDT: G-R-E-G. Last name is 13W-E-N-D-T. 14On January 31st, the board of county commissioners 15did submit written comments regarding this draft DEIS for 16this project. And while the DEIS has many inadequacies, the 17county is deeply concerned that in its current form, the 18DEIS does not meaningfully discuss or disclose impacts to 19our county agricultural lands of long-term commercial 20significance. 21Specifically, the project will result in a 22conversion of ag lands of long-term commercial significance 23without disclosing the environmental impacts of the 24conversion. The GMA imposes on Benton County requirements 25for the conversion on natural resource lands, which includes 1the county's ag lands of long-term commercial significance. 2Benton County is required to designate these ag lands, 3assure the conservation of these ag lands, assure that the 4use of adjacent lands do not interfere with their continued 5use of agricultural lands, conserve agricultural land in 6order to maintain and enhance the agricultural industry and 7discourage incompatible uses. 8The conservation of agricultural lands of 9long-term commercial significance is a State of Washington 10mandate that Benton County must and will continue to follow. 11The county has met this mandate and properly designated it 12agricultural lands. These ag lands cannot be de-designated 13or allowed non-agricultural uses in these areas without 14issuing a determination that the lands are no longer meeting 15the long-term commercial insignificant status. 16Approval of this project would undermine GMA's ag 17lands conservation mandate and allow the permanent 18conversion of 6,869 acres of a temporary conversion of 2,957 19acres of (inaudible) terms commercially significant ag land. 20This results in long-term removal of commercially 21significant ag lands, and in turn, the Horse Heaven Hills 22farming area will suffer irreversible losses as a viable ag 23area of agricultural resource lands. The impacts from the 24loss of ag lands and long-term commercial significance as a 25result of this project must be thoroughly analyzed and 1discussed before a final EIS. Thank you very much.	Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2 of the EIS.	4.8.2	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Michelle Cooke	1131280	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 5SPEAKER COOKE: Michelle Cooke. 6M-I-C-H-E-L-L-E, C-O-O-K-E. 7Thank you for the time. 8First of all, Benton County is concerned that the 9conversion of agricultural lands of long-term significance 10will have a high cumulative impact. The DEIS is required to 11meaningfully disclose and discuss the impacts of permanently 12converting almost 7,000 acres of agricultural lands to new 13land uses. 14These new uses will replace and eliminate not only 15these agricultural lands, but also the function and values 16that these lands provide as a type of natural resource land. 17Additionally, the DEIS fails to discuss the 18economic impacts to the overall agricultural community, and 19further, does not disclose the economic impacts for the life 20of the project. 21The DEIS does not support its own conclusions when 22it states that the proposed action does not contribute to a 23cumulative impact on agricultural productivity, 24profitability, or farm operations within a project area. 25This conclusion is misleading because it implies 1that Benton County conditional use criteria will prevent or 2mitigate any project impacts. The project impacts will 3clash with, rather than meet the tests laid out in the 4Benton County code. 5Secondly, the proposed mitigation measures are 6inadequate to appropriately mitigate the environmental 7impacts of the conversion of agricultural land's long-term 8commercial significance. The mitigation measure, LSU5 9requires that the applicant submit a site restoration plan 10to EFSEC. The DEIS identifies that this plan is to be 11submitted and it's not an actual part of the SEPA record; 12therefore, it cannot be evaluated and does not constitute an 13effective mitigation measure. 14Lastly, there's no discussion of the introduction 15and integration of a large-scale non-agricultural industrial 16use onto the Horse Heaven Hills landscape. Changes to the 17facilities and roads and power lines will impact existing 18grazing and farming activities. 19In closing, the impacts mean a loss of 20agricultural lands with long-term commercial significance. 21As a result, this project must be thoroughly analyzed and 22discussed before a final EIS can be issued. Thank you for 23your time.	Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2 of the EIS.	4.8.2	n/a
			Socioeconomics	Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. The economic analysis did not identify any negative economic impacts resulting from the project. The economic relationships modeled by IMPLAN allow the user to estimate the overall change in the economy that would result from construction and operation of a proposed project. The dollars spent on project construction and operation were analyzed to determine the total economic impact within that area.	Appendix 4.16-1	n/a
Delvin, Benton County Commissioner	1131282	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 1SPEAKER DELVIN: It's J-E-R-O-M-E, Delvin, D 2as in David, E-L-V-I-N. 3Thank you, Madam Chair, and I want to thank EFSEC, 4too, for holding this meeting so we can -- our community can 5have comments. 6I'm the Benton County Commissioner. You just 7heard from Benton County staff about the DEIS and some of 8their concerns, and we share those, the commissioners share 9those. 10I've spent a lot of time in this community, born 11and raised here, and I've always enjoyed the views in this 12area when I hike. What these windmills will do is destroy 13that, in my mind, destroy those views. 14You'll hear from a lot of passionate citizens here 15that really have concerns about what those windmills will do 16to our natural landscape. 17I think you can put it to what -- it would ruin 18our view shed and our views in this area. If you put these 19windmills, say, on the hills around Issaquah or if you put 20them in the Puget Sound or off the coast of Washington, 21there would be a lot of outcry. 22Well, we've been hearing a lot of outcry today 23about this, We don't want those here. There's better places 24for those. If you really want to do those, a lot of people 25may speak about the inefficiency of those windmills. 1There's a lot of data that supports that view. 2So I just ask EFSEC to really give it an honest, 3honest, and not be pressured by all the Go Green and those 4type of -- type of statements because, you know, we just 5don't want to be the dumping ground for all the green 6energy, 7We have hydro, which, unfortunately, is not 8considered a renewable energy in this state, the only state 9in the country, and also, we have nuclear power here. We 10encourage more nuclear power. They don't affect the view 11shed like these windmills. 12So urge you to say "no" to this project, and 13appreciate your time. 14Thank you.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS..	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Ken Spencer	1131287	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 17SPEAKER SPENCER: Thank you. K-E-N, 18S-P-E-N-C-E-R. 19Thank you for giving us the opportunity to comment 20on the Horse Heaven Wind Farm. You, as a committee, have 21given approval for the project despite our county and 22citizens' objection. 23I have a couple points to make regarding the 24approval over the objections of the citizens of our county. 25You have bypassed the urban growth act giving approval for 1an industrial development. If you look back a few years 2ago, the City of Kennewick in Benton County had applied to 3that body for an increased area of industrial development 4south of the I-82 corridor, saying it would not be part of 5the current growth plan. Well, Horse Heaven Wind Farm is 6south of I-82 corridor, and by your authority, you have 7created something that could -- that we could not do. This 8may create some intended -- some unintended consequences. 9If you were the city -- if I were the City of Kennewick, I 10would start developing that area south of the I-82 corridor 11based on your decision. 12No. 2, what is a plan for decommissioning these 13large towers and wind turbines? I have reviewed, as I 14could, some of the cost studies that have been done on that 15topic, and it looks like the estimated useful life of this 16project is between 20 and 30 years. And at the end of the 17useful life, what is the plan to dispose of these, either by 18salvage or disposal at a hazardous waste site? 19The best report and with the most complete details 20was done in 2017 out in South Dakota. At that time, the 21estimate of the cost of decommissioning was $2 million per 22turbine. If we apply inflation over the last six years, 23that cost has risen to over 2.2 million. Now, who is going 24to cover that cost? The taxpayers of Benton County? 25Because we are the ones who are not profiting from this 1project, so I feel there needs to be a funds setup or some 2other reasonable means to pay for the estimated cost to 3return the site to its present condition. 4As has been seen in other developments where the 5subsidies sometimes end at the end of the project and the 6developer or the companies that develop it, they have run 7these developments, disappear when it's time to clean up or 8dispose of the site. They are no longer --	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Lisa Smith	1131289	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 17SPEAKER SMITH: Hi. My name is Lisa Smith 18L-I-S-A, S-M-I-T-H. 19And I live in the Summit View neighborhood of 20Kennewick, which is in Southwest Kennewick. I am a 21proponent of clean energy, but am extremely opposed to this 22massive wind turbine project. 23We already provide efficient, clean energy through 24nuclear power and also the hydroelectric power in our area. 25I don't understand why we'd let an out-of-state company come 1in and completely destroy our natural landscape and ridges 2with these wind turbines. We do have some wind turbines 3already that are visible from my house, and I can see that 4they are idle the majority of the time. We do get wind 5here, but it's actually quite infrequent. It seems crazy to 6forever change a huge part of our landscape to have massive 7wind turbines sitting idle. 8I also don't understand why these wind turbines 9have to be right at the top of our ridges where they are the 10most visible to thousands of people in Finley, Tri-Cities, 11and Benton City. There's a lot of land even just south of 12here, you know, between our cities and Oregon with almost no 13population where these turbines could be and not have so 14much impact on our people. 15Thank you.	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Margaret Hue	1131293	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 23Okay. It's Margaret, M-A-R-G-A-R-E-T. Last name 24is Hue, H-U-E. I'm a resident from Badger Canyon. The 25location where some of these turbines are going to be is 1within a mile and a half of our location, directly above it. 2I've lived in Badger Canyon for 40 years, so I've seen a lot 3of things and know the land and the terrain and so forth. 4But what people don't understand is all of these 5big canyons that drain off of Horse Heaven, they bring wind 6turbulence down. The DEIS refers to Badger Canyon as kind 7of sloping hills, whatever. It is very complex. And all 8these canyons that feed in are -- pull air down, they cause 9wind turbulence, but the wind farms that are coming up, 10there are 150, six rows deep, directly above Badger Canyon 11or to Kiona for nine miles. 12And with that, we have some of the most pristine 13farm ground in Badger Canyon, Red Mountain, Kiona, but also 14down to Finley, but this area here is going to receive all 15of the warm air that's going to damage our diversified 16agriculture. The wind turbulence can be carried up to 15 to 1720 miles, causing chaos on our diversified ag. This will go 18way into Pasco and North Franklin County. 19The other thing is with the warming temperatures, 20most from the wind farms, most of these are in the evening 21or in the afternoon to 10 in the morning. If you're a 22cherry grower, you go out to pick your cherries and the 23orchard is warm, you're not going to be able to pick your 24cherries. That is an economic loss to our community. 25I was concerned because some growers brought out 1small cherries. We found out WSU IAREC is releasing a 2study. It is not out yet, but it will be. And it shows 3that damage from warm temperatures can affect the quality, 4the size of the fruit, which is tonnage. That's money, and 5then also the color on the apples, color on the -- 6CHAIR DREW: Thank you. 7SPEAKER HUE: -- economic loss.	Air Quality	The Harvard study of 0.24 degrees Celsius warming is theoretical model that is based on the assumption that one third of the continental U.S. is covered with enough wind turbines to meet present-day U.S. electricity demand. The Horse Heaven project is a minuscule fraction of the total area included in the Harvard estimate and even if the modeled result were true, the relative magnitude of the purported temperature change would not be expected to result in a measurable change in local climate conditions.	4.3	n/a
			Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2 of the EIS.	4.8.2	n/a
Rita Porter	1131299	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 25SPEAKER PORTER: Hello. My name is Rita 1Porter, R-I-T-A, P-O-R-T-E-R. 2One of the things that has not been addressed so 3far is the blinking red lights, and I'm concerned about the 4blinking red lights. They'll be visible from my home by, at 5times, probably 50 or 60. I live in Badger Canyon, and I'm 6vehemently against the intrusion of the windmills for all 7the reasons that's been addressed and the reasons that are 8yet to be addressed. I don't -- I don't -- I think it's a 9huge show of disrespect of the residents of the Tri-Cities 10not even to give them a voice until after the fact. And I 11didn't really have anything to prepare, but I just wanted to 12show up and give my support to people of the United 13States -- or people of Tri-Cities and voice my opinions. 14Thank you.	Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Karen Richardson	1131301	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 1SPEAKER RICHARDSON: Good afternoon. My name 2is Karen Richardson, K-A-R-E-N, R-I-C-H-S-O-N (sic). 3This has been the culmination of an over two-year 4journey. I've sent EFSEC pictures of animals: Burrowing 5owls, sandhill cranes, the red tail fox, and the pronghorn 6antelopes that graze on our steppe shrub. As endangered 7animals, they've been reintroduced by the Central Washington 8Chapter of the Safari Club. I've sent pictures of 9landscapes, sunsets, vast open -- vast, wide-open spaces. 10I've sent pictures of broken turbines; turbines on fire, 11like the ones in Williamsburg, Iowa, but the people in 12charge don't seem to care. 13US Fish and Wildlife Department with help from the 14Department of Defense just granted a 2.4 million REPI, which 15is a readiness and environmental protection program for 16butterflies, gophers, and horned larks on acreage adjacent 17to the Joint Base Lewis-McChord property. 18The Tri-City Herald just reported that 19Washington-based wind power provides the lowest effective 20capacity in winter compared to surrounding regions. 21According to western resource advocacy programs, a 22quote from a utility planning company: Washington-based 23wind farms should be low on the list of alternatives if 24you're trying to balance CO2 emission reductions, grid 25reliability, and land-use impacts in the most cost-effective 1manner possible. The draft study is lacking a failure to 2analyze proposed wind projects impact on residents. 3With Horse Heaven Hills high pressure inversions, 4cold freezing weather, and windless days, this makes no 5sense to place the wind farms in this area. 6Thank you.	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. Sections 3.16 and 4.16 present Socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities.	3.16 and 4.16	n/a
			General- video or photo	Submitted video/photo received.	n/a	n/a
Tammy Wolfslack	1131303	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 9SPEAKER WOLFSLACK: Hello. My name is Tammy 10Wolfslack, T-A-M-M-Y, W-O-L-F-S-L-A-C-K. Hi. 11I am here to talk about a couple articles 12Washington Times had. The title of the article is, "Death 13by Solar Farm. 71 Species of Birds Killed. Entire Food 14Chains Disrupted." This article talks about 800-degree 15temperatures above solar fields, and apparently one type of 16bird in the study was observed to be smoking of its feathers 17as it flew. 18College of National Sciences article dated January 192021, a 1.6 million DOC grant supports scientists studying 20bird deaths at solar facilities. It discusses the 21incineration of birds, to the point that in some cases there 22was only a puff of feathers remaining. They couldn't even 23identify the remains. 24We are in a wildlife migration route. We are a 25major flyway, according to the United Nations Food 1Agricultural Organization, and I have a lot of photos here 2to show different types of birds as some of them were 3discussed. And when I read the wind solar table ES-6 4discussing special status -- and that means protective 5endangered, I'm guessing -- recommended mitigation measures 6should read as allowable killing protected status species. 7In particular, you're talking about eagles. How 8many eagles are okay? They're going to be given take 9permits, which my understanding is "take" means kill. How 10many are acceptable? Five, ten, 100? I have concerns that 11these shouldn't even be placed here in a flyway. 12So there are other options. I think that starting 13to create things at a point of use is critical. Do it in 14college and a high school. Give them competitions and say, 15Hey, can you attach this to a car tire and make the battery 16generate itself? Solar cells on top of a car. Other types 17of something that can capture the wind on top of a vehicle. 18There's other ways to look at this. We don't have 19to go this way. We should stop jumping out of the airplane 20without checking our parachute for holes. 21Thank you very much.	Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Gayle Graves	1131304	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 24SPEAKER GRAVES: Good evening. My name is 25Gayle, G-A-Y-L-E; Graves, G-R-A-V-E-S, and I reside in 1Canyon -- or excuse me, Sunrise Canyon. Thank you for 2holding this meeting. 3I am against the project as it's environmentally 4devastating. For one example, the diversified agriculture 5will be impacted, raising local temperatures four degrees 6higher annually. Annually. 7Diversified agriculture is one of the economic 8drivers of the Tri-City area. The project is economically 9not sound as it will not create the energy proposed. It's 10at taxpayers expense and will not create the employment as 11broadcasted by the supporters of the project. 12The shrub steppe and wildlife in our community 13care will be decimated without rehabilitation. 14How does this affect me and my family? My home is 15at the base of the hills. I'll be breathing the herbicides 16and pesticides brought down by the winds and the 17construction, Living in higher temperatures with higher 18utility bills, tolerating red lights, noise pollution. 19Missing the wildlife that once flew in the Pacific flyway 20that was once ours to enjoy. 21Thank you for your time.	Energy and Natural Resources	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Comment acknowledged. Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. During operation, lease payments to landowners would generate annual benefits to the local economy over the expected 35 year operating life of the Project. Also, the Applicants will pay taxes to Benton County.	3.16 and 4.16	n/a
			Vegetation	The EIS considers each component of the Project (e.g., micrositing corridor, east solar field) separately in the impact analysis for vegetation. The potential impacts from each component on vegetation are described in Section 4.5. Impacts to shrub-steppe and other priority habitat are assessed based on the present Project plan and layout. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional mitigation measures. Additional mitigation measures include a As-Built Report and Offset Calculation (Veg-4) and Detailed Site Restoration Plan (Veg-7). The As-Built Report and Offset Calculation would include a final calculation of all areas of disturbance which will be used to calculate final offset requirements. The Applicant has voluntarily included rabbitbrush shrubland at the temporary and permanent offset ratios of shrub-steppe. It also includes provisions to require offsets at permanent disturbance ratios if temporary disturbance areas are not successfully revegetated within the timeframe determined by EFSEC. The Detailed Site Restoration Plan would outline the revegetation plan for decommissioning. In addition, this would include provisions for adaptive management based on the revegetation following construction and a requirement for monitoring. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2.	Section 4.5, 4.5.2.4, and 5.2.2	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts from lighting are described in Section 4.10 of the EIS. The Project is not expected to increase sky glow nor be a source of light trespass. Lighting will be visible at off-site locations.	4.10	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Karen Brutzman	1131306	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 24SPEAKER BRUTZMAN: Karen Brutzman. 25K-A-R-E-N, B as in boy, R-U-T as in Tom, Z as in zebra, 1M-A-N. 2 I am against this project. Scout Clean Energy 3wants you to believe that a small group of vocal residents 4is threatening to stop this clean energy project, which 5would generate up to 1,000 jobs and millions in tax revenue 6to Benton County. Don't be fooled. 7Those 1,000 jobs will be short-term jobs for wind 8turbine installation. Once in place the project will employ 9fewer than 50 people. Wear and tear on our roadways will be 10immense. Trucks will bring wind turbines to our area in 11several sections. Roads will need to be straightened. 12There will also be hundreds of concrete trucks traveling 13county roads to provide concrete for wind turbine 14foundations. Many of our county roads were not designed for 15these type of heavy loads. 16Clean energy is a misnomer. Concrete has a huge 17carbon footprint. The environmental impact of concrete, its 18manufacture and applications are complex, including CO2 19emissions. The cement industry is one of the main producers 20of carbon dioxide, a potent greenhouse gas. One reason why 21carbon emissions are so high is because cement must be 22heated to very high temperatures for clinker to form. 23The Tri-Cities is already a hot spot for ozone 24health risk. The Tri-Cities' ozone precursor study final 25report dated December 12, 2017, was prepared by the 1laboratory for atmospheric research, the Department of Civil 2and Environmental Engineering, and Washington State 3University. The link is provided in my written comments. 4This study was conducted because air quality 5managers started paying close attention to ozone levels in 6the Tri-Cities when the daily predictive air quality 7forecast model, operated by WSU, consistently showed 8elevated ozone in the Tri-Cities area. 9The ozone in this study is attributed to car 10emissions, but we can't ignore the pollution created by the 11millions of tons of concrete that will be used to erect 12these gigantic wind turbines and the emissions from the 13trucks transporting concrete to the work site. The 14standard --	Socioeconomics	Comment acknowledged. Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits.. During operation, lease payments to landowners would generate annual benefits to the local economy over the expected 35 year operating life of the Project. Also, the Applicants will pay taxes to Benton County.	3.16 and 4.16	n/a
			Transportation	Transcript was cut short. Comment acknowledged and is included in the administrative record for the EIS.	4.14	n/a
			Air Quality	With respect to impacts on regional ozone levels, construction impacts would be temporary and the expected emissions of the main ozone precursors (NOx and VOC) are very small when compared with the overall inventory of countywide ozone precursor emissions. Mobile source emissions of ozone precursors are considered exceptional small relative to regional emissions and expected to have a negligible impact on regional ozone levels.	4.3	n/a
Christopher Kuperstein	1131309	20SPEAKER KUPERSTEIN: Hello. My name is 21Christopher Kuperstein, C-H-R-I-S-T-O-P-H-E-R, 22K-U-P-E-R-S-T-E-I-N. 23What I say tonight I have to preface by saying 24that I'm an affected landowner, and it does not reflect my 25employer or any other organization that I may associate 1with. 2 I reside, by my calculation, as one of the closer 3residences to these wind turbines. The closest four 4turbines will be placed approximately three quarters of a 5mile to one mile from my house. 6During the pandemic, great care was taken in 7saving the lives of citizens of Washington State. Part of 8this care was to listen to experts who were experts in 9pandemic and in disease and developing mitigating measures 10to protect people from the disease. 11I submit, for the record, an expert medical 12doctor, Dr. Nina Pierpont, who earned her Ph.D studying the 13effects of existing wind turbines on existing people. This 14book titled Wind Turbine Syndrome details medical impacts of 15varying types on real people by real turbines. 16On page 20, I read the chief recommendation: 17Two kilometers or 1.24 miles remains the baseline shortest 18setback from residences and hospitals, schools, nursing 19homes, that communities should consider. In mountainous 20terrain 2 miles, 3.2 kilometers, is probably a better 21guideline. 22My first recommendation is that for this project, 23that EFSEC follow her advice. Instead of the turbine 24placement being one-half of a mile from a nearest residence, 25as the current IEIS suggests, that a buffer of two 1kilometers or 1.25 miles be placed between turbines and the 2nearest residence so as to minimize the health impacts to 3those affected residents. 4Thank you for your time.	Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
Mary Cloningerm	1131310	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 7SPEAKER CLONINGER: Hello. My name is Mary 8Cloninger, M-A-R-Y, C-L-O-N-I-N-G-E-R. 9I am not as eloquent as the people that have 10been -- that are previous to me, and I do not have a lot of 11information. But I'm a native Tri-Citian, born and raised 12in this vicinity, and I am against building the wind farm in 13the Horse Heaven Hills. They are a blight and an eyesore on 14our beautiful hills. The construction will cause damage to 15the ecosystem and cause dust pollution in our air in town. 16The energy produced is not very much, and it's not 17worth destroying our landscape. It is not clean energy. It 18uses oil. It leaks oil into the dirt, and it kills birds 19and disrupts wildlife. And I don't know if anyone has ever 20done a study on what the vibration would do to our basalt, 21and I would suggest that something like that happen before 22you make any decision. 23Thank you for your time.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Energy and Natural Resources	The Project's Energy Natural Resources Section of the DEIS includes recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's construction, operations and decommissioning stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
			Noise and Vibration	Comment acknowledged and is included in the administrative record for the EIS.	4.11	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Art Kelly	1131311	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 1SPEAKER KELLY: Good evening. My name is Art 2Kelly, A-R-T, K-E-L-L-Y. 3We are very blessed to have sufficient and 4reliable power via hydroelectric power and nuclear power 5here in our region; therefore, projected amount of massive 6land for this project is not warranted at this time for 7windmills to be constructed. 8There's no guarantee that whatever power that can 9be generated will not be sold to California, Oregon, Canada, 10or other territories or even benefit the Tri-City area. 11What contingency plans are in place if Scout 12Energy should by chance go bankrupt, federal subsidies are 13depleted, et cetera? Who has the responsibility of removing 14all these wind turbines and restoring the land back to its 15original status? According to the Manhattan Institute, 16windmills provide less than three percent of the world's 17energy. Netherlands and Germany have come out with a very 18progressive technology, using what they call tulip-shaped 19small wind turbines that can be installed on private 20property household, business, et cetera. They're extremely 21quiet. They provide 20 to 50 percent more efficient energy. 22They produce energy to power at least one-third energy of 23consumption of a household. 24There's also the issue of the recyclability of 25windmill blades. I think we need to take advantage and 1re-evaluate our other forms of progressive technology and 2put this on the back burner. 3Thank you for your time.	Chapter 1 - Project Background	The Site Certification Agreement issued by State of Washington to the Applicant states that they shall post funds sufficient for Decommissioning in the form of a guarantee bond or a letter of credit to ensure the availability of said funds to EFSEC.	n/a	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility. The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. This section is also inclusive of recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's operations stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications and others.	1.3 Purpose of Proposed Action 3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Dave Sharp	1131314	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 6SPEAKER SHARP: My name is Dave Sharp, 7S-H-A-R-P. 8The developer has stated that the Nine Canyon 9project establishes a precedent for the proposed project. 10That is not the case. Each of their turbines can produce 11two to three times what an NC turbine can produce. 12The number of turbines, the height of turbines, 13the 25-mile expanse into the project, the amount of 14generation, 100-plus miles of road, 110 square miles of the 15project, and an apparent lack of respect for wildlife 16corridors and habitat disturbance. There is no comparison. 17Horse Heaven Project is another dimension. 18Wind projects have been in Washington since the 19early 2000s. Since that time, there have been nearly 2000 20turbines installed over 20 projects. In all prior cases, 21the developer respected wind industry practices, that sited 22wind projects in rural areas away from high population 23zones. 24This project will have approximately five times 25the population impacted as all other counties in the state 1combined. This will be a disparate treatment of Benton 2County. And what about the precedent that will be set if 3this project is approved with a perceived bias, such as no 4alternative builds and no subsidy of mitigation or a lot of 5unresolved issues being solved by a team separate from the 6main process? Future process -- future projects will 7motivate developers to bypass local officials and use EFSEC 8for every project with sloppy, nonspecific applications and 9expecting approvals with minimal mitigation. Developers 10study previous applications, and they study the decisions 11that EFSEC makes. Those decisions guide how they approach 12and present a new application. 13We are hopeful that EFSEC does not set a new 14precedent with their decisions on this project. This is a 15slippery slope. I hope that you recognize that. Since I 16have a couple minutes -- or a couple seconds, jobs -- the 17real number of jobs from the application is 450 and 18approximately --	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Paul Krupin	1131317	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 22SPEAKER KRUPIN: Good evening, everyone. My 23name is Paul Krupin. That's P-A-U-L, K-R-U-P-I-N. 24I am a retired environmental protection specialist 25with the BAN (inaudible) well-used law degree, over 40 years 1of work experience in the Pacific Northwest, and I live in 2Kennewick, Washington. 10SPEAKER KRUPIN: I did submit my comments, and 11I'll -- I'm just going to read from them. Okay. 12So on Tuesday, yesterday, President Biden said 13that climate change is a bigger threat to United (inaudible) 14than a nuclear war. And Governor Inslee is on record 15committing to (inaudible) on greenhouse gas emissions. 16I have really serious doubts about the underlying 17need for this project and whether it can really contribute 18to any of these problems, you know, with meaningful 19solutions. What does the best science really tell us? How 20are we going to identify the good projects from the bad? In 21other words, I cannot -- I respectfully want to cooperate to 22following the recommendation of EFSEC with concurrence of 23the governor in cooperation with the tribes and the local 24counties and cities (inaudible) commission with exceptional 25people who are appointed to independently investigate 1studying (inaudible) difficult and complex problems caused 2by climate change. 3The members of this commission -- community 4commission should be selected using the best and the 5brightest approach to ensure independence from political 6influence and authority. The commission should utilize 7their expertise and experience to consider and evaluate 8size-based limits and then issue scientific and 9project-specific findings and recommendations which can yet 10be used by decision makers. 11The commission should be charged with identifying 12(inaudible) and evaluating the validity of the purpose, 13meaning and underlying premises of energy projects. The 14revision also evaluated project proposals and alternatives 15proposed by (inaudible). 16No formal action should be taken by EFSEC or the 17governor until the findings and recommendations regarding 18the validity of this purpose, meaning the projects, can be 19provided by the commission. This commission should then 20prepare a report (inaudible) presentations, take public 21comments and then file these findings and conclusions that 22protect recommendations for consideration (inaudible) 23legislature integrated federal, state, tribal, local 24government agencies, tribal governments, public stakeholders 25and the public.	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Clark Stolle	1131320	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 5 SPEAKER STOLLE: Good evening. Clark, 6C-L-A-R-K; Stolle, S-T-O-L-L-E. 7Thank you for the opportunity to voice my 8opposition to the proposed project. My family's lived in 9the Kennewick area for over 70 years. We shared a feeling 10of pride with the Horse Heaven Hills, believing that they 11should be preserved as much as possible as part of the 12heritage of our area. 13Allowing this project to be built at the proposed 14locations has long-term consequences that will cause 15significant and irreparable harm to the environment and 16overall quality of life for an urban area of over 300,000 17people. 18There are two options proposed for this 25-mile 19long project running along Horse Heaven Hills' ridgeline. 20244 turbines of up to 500 feet or 150 of up to 670 feet 21tall. Both create visual impacts that cannot be mitigated. 22This is not a visually aesthetic wind farm turning 23away in the middle of nowhere. It's an industrial complex 24of enormous proportions of many components and impacts. 25These towers are going to be taller than a 60-story 1building. The Space Needle, Statue of Liberty, Washington 2Monument. I think you get the picture. They're big, and 3they're very visible. If approved, our community will be 4forced to live within eyesight of the towers, and no one who 5lives here or visits can escape seeing them. 6I feel the EIS does not perform balance and 7serious analysis of the impacts that will be so detrimental 8to our community. It glosses over tough economic issues and 9impacts on tourism, quality of life, land value, aesthetics, 10recreation and future development. It fails to discuss the 11backlash wind farms are facing in California and other 12states. And there's no discussion regarding alternative 13locations in Benton County, Eastern Washington, or other 14states. It also appears the project will have no positive 15impact on climate change or carbon emissions in Washington, 16and any power generated is likely to be sent out of state. 17Scout selected a poor location far too close to a large, 18growing urban area, and our community should not have to pay 19the price for this bad decision. It can and should be 20located further from urban areas. Please deny this project. 21Thank you.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	Sections 3.16 and 4.16 present Socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities. The impact of wind farms on property values is addressed in the EIS.	3.16 and 4.16	4.16 - Discussion of Project impacts on property values
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a
			Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
			Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility.	1.3 Purpose of Proposed Action	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Harvey Faurholt	1131321	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 24SPEAKER H. FAURHOLT: Good evening. My name 25is Harvey Faurholt. H-A-R-V-E-Y, Faurholt, F as in Frank, 1A-U-R-H-O-L-T as in tango. 2I'm a resident of Kennewick, and I've been a 3resident of Kennewick for about 50 years now. There was 4something humorous, I saw it on -- so serious -- reading on 5the news off my iPhone. And they were talking about, they 6lost about seven whales on the East Coast. And they're 7worried that the wind turbines are causing the death of 8whales, and it's getting an awful lot of attention. And I 9was thinking maybe if we were whales, we would get more 10attention than we're getting here by the State of 11Washington. 12We do not need more intermittent electricity in 13Benton County. The electricity we have now is 90 percent 14renewable, which is probably the best in the country, if not 15the best in the world. When, and if, the wind turbines are 16making electricity, the dams have to be shut down to 17accommodate the wind turbines, which is not good for the dam 18turbines. 19The wind turbines should be placed where the 20electricity is needed. California, the State of Washington 21along the ocean, along the beaches, and I'm sure they would 22be happy to have them. 23When the wind turbines's useful life is completed 24or something better comes along to make -- for example, if 25something happened with -- with the -- without, excuse me -- 1why I stop sometimes -- nuclear energy, then they will have 2to be disposed of. But they are not -- they are not 3biodegradable and will exist forever in the garbage dumps, 4if they make it that far. They're an eyesore that we -- 5that we will have to live with for the next ten, 20, 630 years, and then -- they have enough money to take them 7down forever. 8As for the unions and people who want to have 9these put up, I can certainly understand their position. 10They want jobs as long as they -- as long as they're union 11jobs.	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Energy and Natural Resources	The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, a forecast of regional electricity demand is presented in the Project's Energy Natural Resources Section of the DEIS, which suggests that by 2041, the region could see a 22.5 percent increase in demand.	3.7.1.1 Power Generation and Demand	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Victoria Faurholt	1131323	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 17SPEAKER V. FAURHOLT: My name is Victoria 18Faurholt, V-I-C-T-O-R-I-A, F-A-U-R-H-O-L-T. 19I am -- my head's just spinning. I listen to all 20these people, and they've given so -- all the facts. Here 21is an article from Forbes magazine June 15, 2021: 22Washington State's Approaching Energy Crisis, Good 23Intentions Gone Wrong? 24The trouble stems from attempts to decarbonize our 25society, but just getting rid of them without a realistic 1plan to replace them can do more harm than good. 2Wind power, I mean, I don't know who you guys are 3talking to, but it is not very effective. In several 4studies, it shows there is a projected capacity, but with 5wind power, you don't get warmth in the winter -- you don't 6get movement in the winter or in the summer when it's really 7hot and it's really cold. The actual capacity is 8seven percent. That means of 500, you get 500 milliwatts 9out of 70 -- 7,100 milliwatts. 10But what I really don't understand is this push on 11us citizens. I mean, we have protections for animals. You 12keep your animal in the car and you get a ticket. My cousin 13had to go to court. You have -- not here. Doesn't matter 14here. All these animals, doesn't matter. We have fines 15against noise pollution, all kinds of aesthetic pollutions 16doesn't matter here. These things are ugly. 17We have neighborhoods here with rules and 18regulations. Nobody cares here. We have individual, 19personal help, like the man who was talking about COVID. 20Nobody cares here. They do not care, and that is what is 21just upsetting me. 22And if --	Energy and Natural Resources	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Karen Brun	1131330	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 2SPEAKER BRUN: Okay. I'm Karen Brun, 3K-A-R-E-N; B as in baker, R-U, N as in Nancy. 4I'm opposed to this project. The quantity and 5height of the proposed turbines and the proximity to a large 6metropolitan area, plus smaller communities, is 7unprecedented in Washington State, if not the entire 8country. At two miles, 52.6 percent more Benton County 9residents will be impacted 24/7 by this than the other nine 10Washington counties combined where wind projects exist. 11At four miles, 110 percent more will be impacted. 12This is extremely disproportionate to the rest of 13the state. Tri-Cities residents, including 40 percent who 14are people of color, are being asked to sacrifice our 15landscape, wildlife, habitat, and our way of life for the 16benefit of those on the west side and beyond. This is 17social and environmental injustice in the extreme. 18Governor Inslee publicly stated at the recent 19climate change conference in Egypt that he thinks nimbyism 20has no place in Washington State. If that is his 21philosophy, then why are 11 of the 13 EFSEC projects 22completed or in the pipeline located east of the Cascades? 23And how many applications did EFSEC reject because they were 24to be located on the west side? 25If Governor Inslee insists that citizens in 1Eastern Washington accept the ecological disruption and 2sacrifice of our lifestyles to forest of industrial wind 3turbines and seas of solar panels, he needs to have more 4justification than 100 percent clean energy bragging rights. 5He needs to follow the science. 6The Western Resource Adequacy Program has proven 7that wind power in Washington has an effective capacity of 8 8to 11 percent when it's needed most. What off-taker is 9going to sign a contract for so little? 10This project is going to cost much more 11environmentally, socially, and economically than it will 12ever return. One just has to follow the money to see who 13truly benefits.	Socioeconomics	Human-environment aspects and potential impacts on population were analyzed in various sections of the EIS including but not limited to Public Health and Safety, Transportation, Land and Shoreline Use, Visual Aspects and Light and Glare, Air Quality and Socioeconomics. Sections 3.16 and 4.16 present Socioeconomics conditions and impacts on socioeconomics including impacts on people of color and low income communities.	3.16 and 4.16	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Energy and Natural Resources	The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, a forecast of regional electricity demand is presented in the Project's Energy Natural Resources Section of the DEIS, which suggests that by 2041, the region could see a 22.5 percent increase in demand.	3.7.1.1 Power Generation and Demand	n/a
Jeff Banning	1131335	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 19SPEAKER BANNING: My name's Jeff Banning. As 20a resident of Kennewick for over 20 years, I'm completely 21against constructing a wind farm so close to our growing 22community. Excuse me. There's no reason that this wind 23farm needs to be sited at the southern border of the 24Tri-Cities. Eastern Washington has plenty of unpopulated 25open space available for these kinds of low density, 1inefficient energy producers. 2Appendix Q, Visual Simulations, figure 81 A and B 3is what I would see every day as I drive to work, get 4groceries, walk the dog, mow my yard, or look out of my 5living room windows. 6Instead of the greens of the wheat fields in 7spring slowly fading into hues of yellow and brown over the 8summer, my view would be dominated by over 20 spinning, 9blinking monstrosities. Part of the Tri-Cities allure is 10the open panoramic views of our vast shrub steppe ecosystem. 11244 wind turbines would make a mockery of that. 12If I bought a house within view of a wind farm, 13then that would be a choice I made, knowing full well going 14into the purchase. Placing the Horse Heaven Hills Wind Farm 15at its proposed location is an insult to the many South 16Richland, Kennewick homeowners who chose this area 17specifically for the views of Badger Canyon and the feeling 18of openness as you look out of your house. 19I would much rather have a single, small modular 20reactor nuclear plant built in the same general location 21than hundreds of inefficient wind turbines and solar panels. 22And SMR may not have as large a name plate generation value, 23but we all know that wind and solar never generate their 24name plate values. And a small modular reactor would give 25you consistent electrical output, versus a variable nature 1of wind and solar. In the winter, we can sometimes go weeks 2with the low cloud base and no wind. There would be zero 3output from the Horse Heaven Hills wind and solar generators 4during those weeks. 5In closing, if the State of Washington feels the 6need to install renewable energy devices to meet carbon 7emission reduction goals, they need to do it far away from 8the major population centers of Eastern Washington. 9Thank you.	Energy and Natural Resources	The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	3.7.1.1 Power Generation and Demand	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Kevin Self	1131337	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 15SPEAKER SELF: Yes. Kevin, K-E-V-I-N, 16S-E-L-F. Can you hear me? 17SPEAKER GRANTHAM: Yes. 18SPEAKER SELF: Okay. Here I go. 19(Inaudible) draft EIS. The draft EIS lacks 20critical information as required by law to inform all 21effective stakeholders. This incomplete draft is not 22allowed the proper review, which places the opportunity to 23comment at a disadvantage. 24The draft EIS states the applicant would develop a 25final restoration plan. By not providing this plan, the 1stakeholder cannot comment on how it's going to be 2implemented. 3When referring to a requirement or a plan, the 4draft uses the non-committal word "would" rather than 5"will." It uses it 5,200 times throughout the document. 6My personal objections to this project: We built 7our home in Badger Canyon 12 years ago. We moved here 8because of the openness, the country feel with endless views 9of rolling hills and unmatched sunsets. We may not have the 10trees like the west side, but our rolling hills and 11wide-open views are equally as beautiful and irreplaceable. 12My objection to this project is 100 percent due to 13the adverse visual effects. The thought of looking at these 14towers on our hilltops and the destruction of the natural 15beauty and the surreal settings is unthinkable. Our views 16will forever be destroyed by the windmills scattered on our 17ridgelines with 600-foot towers will make our views look 18like an industrial park, similar to the pumpjacks in 19Bakersfield, California. 20This project is all about politics. EFSEC became 21an independent state agency on June 30th, 2022. State 22legislature passed the bill to authorize the change as an 23important step to achieve Governor Inslee's carbon neutral 24goals by 2045. 25Most of the 7 point 70 million (sic) 1Washingtonians aren't aware of how or why it was changed. 2This new law was requested by the office of the governor to 3modernize EFSEC, giving them the authority to preempt all 4aspects of certification and regulations of energy 5facilities. Our locally elected officials representing our 6city and county offices have no authority under this law. 7We, the people, have been stripped of our right to be 8represented. 9Now EFSEC has the power to come into any town in 10our state and overrule local government. This is a result 11of a governor who has an aggressive green agenda that can 12only be achieved with radical measures (inaudible) Central 13and Eastern Washington are paying the price by forcing these 14projects into our backyard. 15The poorly prepared draft...(pause).	General - opposition	Thank you for your comment; your concerns have been noted. The term "Would" is used in the context that the mitigation measure or impact "would" occur in the event of implementation of the Proposed Project. In the event that the Proposed Project is approved and built, the project Applicant would be required to implement all mitigation measures and conditions imposed by the lead agency and other permitters.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
Marilyn Dickenson	1131338	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 18SPEAKER DICKENSON: Thank you. I'm Marilyn 19Dickenson, M-A-R-I-L-Y-N, D-I-C-K-E-N-S-O-N. 20I am not in favor of this massive, intrusive wind 21turbine project. Build nuclear plants, they are clean and 22provide consistent, stable energy. 23Thank you.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS..	n/a	n/a

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From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Pam Minelli	1131339	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 1SPEAKER MINELLI: I am Pam Minelli. P-A-M, M 2as in Mary, I-N-E-L-L-I, and I'm a Kennewick resident. 3Many are asking, Why does the applicant want to 4cover over 100 square miles of the scenic Horse Heaven Hills 5with up to 244 whirring and flashing wind turbines as tall 6as Seattle's Space Needle? Why here, when wind projects are 7usually placed in remote, rural locations? 8In chapter 1, page 5 of the DEIS, the applicant 9lists commercially viable above-average wind speeds as one 10reason for selecting the Horse Heaven Hills. 11To the contrary, a study by the Western Resource 12Adequacy Program, or RAP reports Washington-based wind power 13provided the lowest effective capacity of the Western U.S. 14and British Columbia during December into February. And 15that during the hottest months, August and September, 16Washington wind capacity again declined. 17In other words -- cut, the wind doesn't blow 18enough here. 19The DEIS lists area landowners' willingness to 20participate in the project as another reason for selecting 21the Horse Heaven Hills, but fails to recognize the objection 22of local residents, Benton County commissioners, city 23councils, other elected officials, and more. 24Despite the science and local opposition, the 25applicant is committed to building this inefficient project 1that is too close, too big, and too tall. It's too close 2with 100,000 people living within six miles of the Horse 3Heaven turbines. That's compared to about 19,000 people 4within six miles for all the other projects in the state 5combined. 6Instead of trees, 150 to 244 Space Needle-sized 7wind turbines with red flashing lights will be visible 8without the -- throughout the Tri-Cities and by tourists 9visiting our famous wineries. It is so big that Washington 10Department of Fish and Wildlife fears it is impossible to 11effectively mitigate the environmental risks it poses to 12sensitive wildlife and some of the last remaining shrub 13steppe habitat in the state.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
			Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Patrick Grengs	1131344	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 19SPEAKER GRENGS: Excellent. My name is 20Patrick Grengs, P-A-T-R-I-C-K, G-R-E-N-G-S. 21Speaking as a 30-year resident of the Tri-Cities 22and owner of 40 acres of farmland here in West Richland, I'm 23here to make clear my statement against any construction 24related to the Horse Heaven Hills Wind Farm. 25First and foremost, wind turbines are not 1economically viable. Wind power is intermittent, as we all 2know. Every watt of power produced by wind must be 3supplemented by back-up sources including hydro, nuclear, 4and a mix of hydrocarbons. At a minimum, this doubles the 5cost of wind power. 6Second, wind power is neither green nor 7sustainable. The wind blades must be replaced every 20 to 825 years as a result of stress-fractured degradation. Most 9of the turbines in the Columbia Gorge were installed during 10the period of 2005 through 2015, and many of these will need 11to be replaced starting in 2030. 12Recycling is not an economically viable option. 13Wind power is simply not sustainable. Instead of 14desecrating our beautiful landscape in Eastern Washington, 15we should focus our efforts on preserving the fully green 16and clean hydropower that's in operation, as well as advance 17the build-out of safe nuclear reactors. I submitted 18additional comments via email to EFSEC. 19In summary, I'm opposed to the Horse Heaven Hills 20Wind Project. Thank you.	Energy and Natural Resources	An analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS. Additionally, the Project's Energy Natural Resources Section of the DEIS includes recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's construction, operations, and decommissioning stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	3.7.1.1 Power Generation and Demand 4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Rylan Grimes	1131353	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 1SPEAKER GRIMES: Okay. My name is Rylan 2Grimes. R-Y-L-A-N, G-R-I-M-E-S. 3I'm a lifelong resident of the Tri-Cities, and I'm 4a representative of the IBW Local 112, and we represent 51,300 electricians in Southeastern Washington that would 6greatly benefit from the jobs that will be created by this 7project. 8My brothers and sisters of IBW 112 have been at 9the forefront of green energy production, including a recent 10repower at the Vansycle Wind Project in Athena, Oregon, 11successfully extending the life of the towers down there. 12My brothers and sisters built the first wind and solar 13project in America that could put power on the grid 24/7 14through battery storage in Lexington, Oregon, last year. 15Low cost power is the key to attracting new industries to 16the area, and we need the supply -- we need the supply in 17any form it takes. 18My brothers and sisters depend on a steady stream 19of construction jobs, and denying this project not only deny 20them these jobs, but future jobs, as well, as industry turns 21away from the area. 22I understand a desire to build this project far 23from view, but I would ask those opposed how long their 24commute to work is. Many of my brothers and sisters drive 25an hour and a half one way to work every day. This would be 1a welcome change of pace for many of them. 2IBW Local 112 and I support this project. 3Thank you.	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Darrell Osborn	1131355	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 6SPEAKER OSBORN: Yes. Darrell Osborn. 7D-A-R-R-E-L-L. Last name Osborn, O-S-B-O-R-N. 8Okay. What I would start with, at the beginning 9of this call we took a roll call. What I noticed absent was 10anybody representing public health. And I call that to 11attention, both the audible and inaudible effects on nearby 12locales, and the well-documented cases in other areas in 13which they are finding neurological conditions and other 14things that have been continued to be researched and trying 15to attribute exactly where these seemingly new conditions 16are arising from, which just happen to be nearby wind farms. 17This has happened in the mainland all over the US and as far 18out as Hawaii and the North Shore. 19Secondly, we talk about some of the goals of the 20county and our public lands, kind of designation goal No. 3 21is conserve visually prominent, naturally vegetated steep 22slopes and elevated ridges at the Columbia Basin landscape 23and our nuclear product of the ice age. That's a goal. I 24don't believe that this project maintains that goal of 25preserving the landscape. 1Another note in the document is that this is four 2miles south of Kennewick. I'm not sure exactly the point 3they used in Kennewick, but as Kennewick continues to 4expand, as someone already previously noted, this is upwards 5of three quarters of a mile from residents. And as we 6continue to expand out the Badger Canyon area in helping 7developments continue to grow, I'm all for clean energy, 8just not at the expense of the residents and the way of 9life. 10I commute a long ways. I don't think a shorter 11commute is a good reason for a couple of electricians to 12damage our environment and our infrastructure. 13Thank you for having me.	Public Health and Safety	Impacts of the Project on public health are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate public health risks, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures, preparation and implementation of an Emergency Action Plan, and spill control and response measures. The Applicant has committed to implementing dust suppression measures, as provided in Section 4.3.2.4 of the EIS. Low-frequency noise is not predicted to be emitted based on the impact analysis reports completed.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations. Additional mitigation including potential turbine removals will be considered by EFSEC, during their project review process, to reduce impacts on visual resources including those landscapes identified in the Benton County Comprehensive Plan.	4.10	n/a
Lohr	1131356	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 18SPEAKER LOHR: J-A-S-O-N, L-O-H-R. Thank you 19all for having me. 20I think what I'd like to talk about is, I am an 21electrician. I've lived here most of my life, and I'm -- 22it's depressing to hear so many of my fellow citizens 23belittle and diminish my profession and those of nine 24percent of our citizens here locally. We account for about 25nine percent of workers and a heck of a lot more than that 1of the economy. Construction is a great deal of our economy 2out here. 3I hear a lot about, these jobs are temporary. 4Construction is temporary. I build things, and then they're 5built, and then I go build something else. My job is 6important. All of our jobs are important. I do not think 7it is a genuine, viable argument that jobs aren't important 8because they won't last for ten years. It is a huge portion 9of our economy and is the way myself and an awful lot of 10people feed our families. So I really don't like hearing, 11Who cares about a couple of electricians, particularly from 12elected officials. 13Now, with the rest of my time I guess I'd like to 14bring up a couple of weird things I've heard. I recommend 15you Google wind turbine syndrome because all the results are 16basically, it doesn't exist. 17Do solar panels vaporize birds mid flight? No. 18That's absurd. 19I have worked in wind and solar projects. I find 20it interesting that there's a bunch of people that looked up 21some things that would confirm their bias on the Internet, 22and we haven't heard from anybody who is an expert in any of 23these fields. 24I have worked in these places. I haven't seen any 25dead birds. I haven't seen any huge environmental impacts. 1I've seen crops growing right underneath these things, and I 2personally think it's unacceptable for a couple of 3homeowners to move to the edge of the city and point out 4their kitchen window and say, That's it. Nobody ever gets 5to build anything there because I bought a house over here.	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Valerie Miller	1131361	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 12SPEAKER MILLER: Hello? Okay. This is 13Valerie Miller. My name is V-A-L-E-R-I-E, M-I-L-L-E-R. 14I just want to first say I am just so amazed at 15the effort that our community members have put in to really 16researching and studying what is going to go into this 17windmill project. I mean, it takes a lot of time and 18resources to do that. 19I know I've been doing my best, and I'm a busy mom 20of four. And I'm very concerned because these are going to 21go up in our backyard, and I've never heard of such a big 22wind farm ever. So this is very new to everyone. 23And the gentleman that just spoke, no one -- no 24one is downplaying jobs or electricians or diminishing what 25they do, but the concern for the rest of the citizens is how 1sustainable these are, how reliable they are. 2I mean, everything I have read, there's no -- no 3one's been able to recycle these materials, so I don't 4understand how they're considered green for energy. I mean, 5it doesn't seem like anything about them is green. I mean, 6I'm concerned that if we look far enough down the road, 7these things are going to become landfills and skeletons in 8our community and eventually could create, basically, a 9ghost town with all the effects that it creates. I mean, 10nobody really knows. Right? 11And I understand that I don't have the skills or 12knowledge about all that goes on with our environment, but 13from what I read in the EFSEC study, it sounded like the 14study didn't come up with a good reason why the wind farm 15shouldn't be in either. And that's a concern to me because 16that's what the government is going to be reading. Right? 17And so I really hope that EFSEC will help us to 18help them understand these concerns that we all have and 19that we want to create something that's going to be 20sustainable for all of us for the future, you know, looking 21far enough down the road --	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
J Miller	1131364	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 5SPEAKER J. MILLER: So, you know, my biggest 6concern on this project is, again, it seems like it's a 7project that well may provide some initial short-term 8benefits. 9The long-term repercussions of the project could 10be disastrous. You look at some of the projects in other 11areas of the country, such as in California and on the east 12coast. Many of these states no longer allow these big 13projects to even occur because they've seen the detriment of 14long-term impacts. 15I mean, you look in Southern California, these 16huge farms that are now wind farms that are now, in a large 17part, non-functional, because the long-term implications of 18what they were doing were never completely thought through. 19If you were to do any type of a project like this, 20there needs to be a guaranteed -- basically, a 21responsibility of the company, where they have to dismantle 22these if they don't work or if they're not in use for a 23certain period of time. And that money needs to already be 24collected, so it's not something they could pay in the 25future; it's guaranteed that they will take care of their 1own waste. 2Again, as has been mentioned before, the wind 3blades are highly toxic, can only be placed in a couple of 4different landfills in the country. This is not something 5that is easily taken care of. 6These windmills have a very limited lifespan. 7They don't last forever. They last for, usually, a little 8more than a decade or two at best based on a lot of the 9research. And again, you're going to create large areas 10that have significant environmental impact, and that doesn't 11even go into some of the impact on the animal species in 12this area, the migratory patterns and things along those 13lines. 14So I'm strongly opposed to this project, as I see 15the detrimental impact it has on the community, particularly 16in the long-term. It is enormous. And particularly on our 17environment, these are an environmental disaster; once these 18things are no longer functional, trying to figure out what 19to do with these toxic blades, these big eyesores, and 20basically trying to figure out how to manage them. 21So thank you very much for your time. I 22appreciate everybody's effort.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a

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Sam Detchter	1131366	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 6SPEAKER DECHTER: S-A-M, D-E-C-H-T-E-R. 7I am opposed to the Horse Heaven Wind Farm 8Project. The Horse Heaven Wind Farm Project proposes 9construction operation of a combined wind and solar power 10renewable energy facility only four miles south of Kennewick 11and stretches for 20 miles along the Horse Heaven Hills. 12The product of this project, electricity, will not 13be used in the local area and will, in fact, most likely be 14shipped out of Washington. Once construction is complete, 15the high-paying jobs will cease. However, the several 16hundred huge wind turbines, up to 500 feet or more tall, 17will be around for many years negatively impacting the 18citizens living nearby and the area's wildlife. 19Final approval for the Horse Heaven Wind Farm 20Project should rest with Benton County and other local 21government agencies. This would more appropriately reflect 22the desires, concerns, values and priorities of the local 23community. 24Similarly, determination of satisfactory 25operational performance to meet permitted conditions and 1operational parameters should be in the hands of local 2agencies and not in the hands of the facility 3owner/operator. 4Second, if the project is allowed to proceed, it 5should be moved away from the crest of the Horse Heaven 6Hills and relocated southward, several miles toward the 7Columbia River, where it will not be visible from the 8Tri-Cities and will not present an eyesore to our citizens 9and visitors. 10Remember HD Wells' War of the Worlds when the 11martians invaded. I am concerned for the wildlife that will 12be displaced by construction and operation of this project. 13I am concerned also for the birds that will be endangered 14and destroyed by the operating wind turbine blades and will 15have their historic flight patterns disrupted and breeding 16grounds destroyed. 17If we can fight to protect our salmon, we should 18fight equally as hard to protect our birds and other 19wildlife. 20Our highly desirable scenic views, important to 21local business and attractive to out-of-town visitors will 22be lost. This will negatively impact the local and regional 23economy through the loss of business, loss of visitors and 24loss of revenue.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	While there are potential off-takers having distribution outside of Washington state that could be under contract with the Applicant as purchasers, Project generated power would be transmitted to a purchaser under a contract with the Applicant including any of the local or regional utilities, or commercial and industrial power users. Potential project impacts on land and resource use and recreational use did not identify impacts on loss of businesses or loss of victors, therefore, there potential impacts on economical conditions of existing businesses around the project area is not anticipated.	1.3 and 4.16	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations.	4.10	n/a
Ross Marturano	1131367	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 6 SPEAKER MARTURANO: My name is Ross, R-O-S-S, 7Marturano, M-A-R-T-U-R-A-N-O. 8It's difficult not to incorporate all of the 9thoughts already mentioned, so I just want to add some 10additional thoughts. 11I worked in Manhattan 35 years. Manhattan is 17 12miles long. This project is 25 miles long. 70 of the 13structures are taller than the skyscrapers in Manhattan, so 14we are essentially creating a Manhattan along the southern 15part of Kennewick County -- or Benton County. 16Additionally, none of the power is required within 17this area. We are 100 percent renewable in Benton County. 18We do not use coal, {inaudible} hydroelectric, no natural 19gas, {inaudible} to ten percent nuclear. No petroleum is 20used in generation of the power. So we're essentially a 21green community now. 22So why would this project be put in this location 23when it's not necessary locally? There's no insurance that 24the power will be used locally, and it's strictly only a 25profit incentive in doing this project. 1 So I'm strongly against this project for aesthetic 2reasonsand for common sense. And I thank you for your 3time.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
Diane McDaniel	1131371	6SPEAKER MCDANIEL: Yes. Diane McDaniel. 7D-I-A-N-E; last name is McDaniel, M-C-D-A-N-I-E-L. 8My family moved to the Tri-Cities in 1973 when my 9father was transferred here to work on the Ice Harbor Dam. 10He was career Army Corps of Engineers. He would work on 11dams throughout the west and up and down the Columbia and 12Snake Rivers. 13When Dad transferred to his next assignment, my 14brothers and sisters and I would stay here. We would put 15down roots, marry and have kids and grandkids here in the 16Tri-Cities. 17The growth of the Tri-Cities I've witnessed since 18I973 is beyond incredible, and the past years have been even 19bigger, although not always the best jobs for working 20people. That's why we need to support new energy that can 21power those good-paying manufacturing jobs. Most can't 22afford the home on the hilltop. 23What I ask of EFSEC is to include in their review 24how the Horse Heaven Clean Energy Center's electricity would 25contribute clean power to our local region needs. Many 1folks like to complain, and we've heard a little bit on the 2call tonight about California and others, BPA selling our 3power, turning each other against outsiders. And, well, 4let's just set that aside for now. 5The truth is we need more of everything. My 6family, we were dams, from the Libby Dam, to Ice Harbor, to 7John Day, up and down. And we all worked on Hanford, but we 8need more. And we need to attract new manufacturing to the 9Tri-Cities area, and I think this project will help do that. 10Thank you for your consideration of my comments.	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Greg Gales	1131376	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 15SPEAKER GALES: My name is Greg Gales, 16G-A-L-E-S. 17And I speak in favor of this project. Like it was 18said by the electrician earlier, Rylan Grimes, that it would 19provide income for the local community. It would also -- 20this project would also contribute an estimated 260 million 21in new tax revenue for our community. 22So I guess I don't understand the other comments 23that -- why they wouldn't be in support of that to be able 24to grow Tri-Cities. 25So that's what I'd like to say is, I do support 1the project. Thank you.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Graham Zimmerman	1131378	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 4SPEAKER ZIMMERMAN: Hi, this is Graham. 5Graham Zimmerman. G-R-A-H-A-M, Z-I-M-M-E-R-M-A-N. 6I am a professional mountain climber and the 7alliance manager at Protect our Winters. I've made first 8ascents from Alaska to the Karakorum, feats that have 9resulted in awards, including the gold medal of alpine 10climbing, called the Piolet d'Or, and a role as the board 11president of the American Alpine Club. 12I also work full-time at Protect our Winters to 13engage our over 200 athletes, creative scientists and 14business leaders to mobilize the 15 million alpine 15enthusiasts in the United States, which (inaudible) the 16outdoor state, to advance non-partisan climate solutions 17that protect all communities and the places that we love to 18recreate. 19I'm Zooming in today from Bend, Oregon, where I am 20based, but I grew up in Edmonds, Washington, and the 21beautiful Cascades is where I fell in love with climbing. 22These days I'm in Washington frequently to visit my family 23and to visit those incredible mountains. 24I'm here on behalf of Protect our Winters, my 25family and community in Washington to provide support for 1the Horse Heaven Clean Energy Center. Having studied 2glaciers in university and spent the majority of my life 3exploring environments, I've witnessed the impacts of 4climate change firsthand and the mountains worldwide, very 5much including Washington. These impacts have crept into 6the lower elevations in the form of wildfires, strong storm 7systems and heatwaves. All of these have expanded the 8climate issue to encompass massive impacts on community 9health. 10As you will see in our written public comment, 11without utility scale projects like this, dramatically 12decreasing snowpack and extended wildfire seasons will 13continue to threaten Washington's $6.3 billion outdoor 14recreation economy and the health of all Washingtonians. 15In conclusion, I urge you, on behalf of the 16members of the outdoor state and all Washingtonians who 17value clean air, community health and economic prosperity, 18to move the Horse Heaven Project to its construction phase 19and issue all pending approvals on the project. 20Thank you.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Brent Strecker	1131381	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 23SPEAKER STRECKER: Yes. Brent Strecker 24B-R-E-N-T, S-T-R-E-C-K-E-R. 25Benton County's been my home for over 50 years, 1and my family live within one mile of the proposed turbines. 2I enjoy outdoors and have hiked and biked the Horse Heaven 3Hills my entire life. 4I see first-hand the wildlife that will be 5affected by the turbines. There's an owl couple that hoots 6from our rooftops during the night, and I see hawks almost 7every time out riding or biking. I generally see flocks of 8seagulls or Sandhill Cranes and geese flyover year-round. 9One time, this last December, the sky was filled with flocks 10and birds for as far as I could see in all directions. Some 11of the flocks had 500 to 1,000 birds in them, all headed 12through the proposed turbine area. 13Industrial wind turbines are not a novelty or a 14celebration of -- symbol of the environmental virtue many of 15Eastern Washingtonians who live within them as an intruding 16presence along every path we travel in and out of our 17community and as a backdrop to our favorite fishing, 18hunting, hiking and sightseeing destinations. 19The idea that my wife and I have to live within 20this intruding presence of the forest and industrial wind 21turbines in our backyard every time we step outside, day or 22night, it's dispiriting and, frankly, downright depressing, 23particularly when you consider that Washington state is 24already one of the top renewable energy producers in the 25nation and that unreliable wind farms will do little to 1nothing to solve the real problem with increasing blackout 2risk within our -- facing Washington State citizens. 3There are many reasons the turbine towers over the 4Tri-Cities are just wrong. For instance, my estimate, this 5project would reuse around 20,000 gallons of oil annually, 6but the reason -- the one reason that should be most 7considered is the western regency protection research 8because it directly addresses how the turbines in our area 9will operate. Thank you.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a

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Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Rick Dunn, general manager of Benton PUD	1131384	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 16SPEAKER DUNN: Yeah. Good evening. Rick 17Dunn. R-I-C-K, D-U-N-N. I'm the general manager of Benton 18PUD and a longtime citizen of Benton County. 19It's common sense to recognize the intermittency 20and variability of the wind power is a significant 21deficiency when the power grid is expected to deliver 22continuous and uninterrupted electricity no matter what the 23weather. 24The question is, can you assign a number to this 25deficiency? And the answer is yes, and utilities in the 1Northwest have done it. In response to increasing risk at 2Northwest power grid blackouts driven by rapid coal plant 3retirements and no plans for reliable replacements, Benton 4PUD joined a consortium of utilities in an effort, called 5the Western Resource Adequacy Program, also known as WRAP. 6One major objective of the WRAP was to adopt 7common grid reliability planning and analysis standards, 8including calculating what percentage of installed wind farm 9generating capacity located in certain geographic areas can 10be counted on when electricity demand is highest. 11What the WRAP team determined is Washington wind 12farms are expected to provide the lowest effective winter 13capacity than any region analyzed, by a factor of more than 14two to three depending on the month. In the worst case, 15utilities who add Washington wind to their portfolio will 16only be allowed to use eight percent of the maximum 17generating capacity possible as credit toward their January 18dependable supply inventory. 19The 850 megawatt Horse Heaven Hills Wind Farm 20boundary area is over 72,000 acres, but the project would 21only be credited by the WRAP for 68 megawatts of 22January-effective capacity. It would take more than seven 23projects the size of the Horse Heaven project to provide 24effective capacity-based, single clean burning and 25dependable natural gas power plant occupying 15 to 20 acres. 1Utility engineers like myself have been backed 2into a corner by politicians who are now designing the power 3grid to their liking. There's no doubt wind farms are going 4to be built. But if you still think the matters should 5matter, Washington wind farms should be low on the list of 6the alternatives, or in the case of the Horse Heaven Wind 7Farm, removed from the list. Thank you.	Energy and Natural Resources	The purpose of the proposed Project is to provide 1,150 MW of renewable energy using wind energy and solar energy, as well as a battery energy storage system (BESS). The Applicant selected the Project location because it meets the following feasibility and viability criteria of commercially viable above-average wind speeds, sufficient flat area and solar irradiance to site solar PV panels, close proximity to existing transmission lines with sufficient available capacity to carry the Project's output to the grid as well as area landowners willing to participate in the Project and have sufficient undivided acreage to support a commercial renewable energy facility.	1.3 Purpose of Proposed Action	n/a
Mike Bosse	1131386	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 12SPEAKER BOSSE: Thank you. Mike Bosse. 13M-I-K-E, B-O-S-S-E. 14Developing the project's hybrid combination of 15wind, solar and battery storage applications will create as 16many as 930 jobs for skilled construction workers. Through 17building of local access roads and foundations to support 18the technology, the project will employ crane operators, 19electricians and skilled laborers. 20The project will be a significant source of 21employment in the local area. The jobs required by this 22project are high-paying, family wage opportunities. 23Economic impact studies examining the projects estimated the 24typical income per worker during the construction phase will 25be $113,500. That's nearly 60 percent higher than the 1average regional compensation across industries and 37 2percent higher than the compensation in the construction 3industry for Benton and Franklin Counties. 4The studies also show that a -- at full build-out, 5the project could amount to at least 73 million in labor 6income and 143 million in total economic output. Following 7construction, the project will also create a combination -- 8a combined direct, indirect and induced total of 56 9long-term high paying jobs during the estimated 30-year 10lifespan. 11I'd also like to add that I'm happy to hear 12there's so much support on this forum for nuclear power, as 13that will probably be coming up in the near future as well. 14Thank you for your time.	Agreement with the Project	Comment acknowledged.	n/a	n/a
andrea.grantham	1131390	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 2SPEAKER SEUBERT: I already submitted 3comments in writing, so I'll keep it short. 4I agree with a lot of the comments against a wind 5farm here, blinking lights and waste of space, when nuclear 6power is a lot more efficient. But I'm also a local 7paragliding pilot who flies on that ridge, basically, on 8every opportunity that I get. The wind is very variable. 9Sometimes it's way too strong; sometimes there's absolutely 10no wind, which, you know, affects wind power generation 11probably as well. 12But I'm also concerned about the effect of the 13turbines on paragliding pilots. Not the risk of getting 14hit, per se, but how much turbulence is after the turbines; 15how much does the winter ones affect, you know, the wind, 16downwind of the buildings. 17That was not addressed in any of the comments in 18the environmental statement, at least I haven't seen it. 19They mention a lot of paragliding spots, but none of those 20spots are used, except for Kiona, which is right -- the same 21which -- where the wind turbines are planned to be built. 22So just something to keep in mind.	Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a

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Cisco Elguezabal	1131393	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 25SPEAKER ELGUEZABAL: Nope, you got it pretty 1close. Cisco, C-I-S-C-O. Last name, E-L-G-U-E-Z-A-B-A-L. 2Thank you for the opportunity to speak tonight. 3I'm the business manager of Labors Local 348. I represent 4over 1,200 hardworking men and women in Eastern and Central 5Washington. 6Horse Heaven Clean Energy Project will result in 7approximately 1,000 local union construction jobs, 56 8long-term family permanent jobs. 9Scout Clean has also committed to the use of a 10apprenticeship utilization for 15 percent of labor hours. 11We already have trained, qualified men and women to do the 12renewable projects, so we are in full support of this 13project. Thank you.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Russell Walker	1131396	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 16SPEAKER WALKER: Good evening. Russell 17Walker, R-U-S-S-E-L-L, W-A-L-K-E-R. 18I commend this council on the thorough analysis 19visual impact included in the DEIS for the Horse Heaven 20Clean Energy Center. This approach is based on a factual 21and sound methodology, a forthright accounting of how the 22project's visual impacts will vary widely in different 23distances between key observation points. A clear 24mitigation measure is to avoid and minimize the most 25significant potential visual obstructions. 1This impartial science-based approach is needed, 2particularly considering many of the emotional and 3inaccurate appeals that have been made about the project. 4It is true that individuals may have a difference 5in opinion about what our region's landscape ought to look 6like. It's also true that wind turbines are prominent 7features which will be seen by many, may elicit subjective 8reactions. But by relocating the project's proposed 9turbines in the foreground areas of non-participating 10residents and other sensitive viewing locations, the counsel 11is ensuring the most significant impacts will be mitigated. 12It is also important to clarify that the proposed 13project layout keeps much of the turbans out of sight from 14key population centers. This has been demonstrated through 15several visual simulations which demonstrate where the 16turbines would be in relation to specific viewpoints, but 17the current mitigation strategies identified by the DEIS, we 18need best practices for minimizing view shed impacts. Any 19reactions raised from the project's visual impacts should be 20considered subjective. They were also very widely based on 21distance and viewpoint. 22These differences and opinions certainly shouldn't 23raise the standard of further regulatory intervention. I 24highly encourage this council to carefully balance these 25dynamics against a significant contribution to the Horse 1Heaven Clean Energy Center, which will make for achieving 2our state's climate agenda, curbing the impacts of climate 3change and achieving the region's clean energy goals. 4Thank you.	Visual Aspects, Light and Glare	Comment noted regarding the visual analysis and application of mitigation measures to reduce impacts.	4.10	n/a
Kathryn Tominey	1131401	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 9SPEAKER TOMINEY: Okay. Kathryn Tominey. 10K-A-T-H-R-Y-N; Tominey, T-O-M-I-N-E-Y. 11I'm supporting the program, the combination of 12wind turbines, solar and high capacity storage batteries. 13It's a great combination. It's not the only solution, but 14it will certainly help the area. 15I came here from college in February of 1968, 55 16years ago. So I've lived here 55 years, and, yes, there are 17lots of things that look different now than they did then. 18Drive from Bend to the Columbia River, drive from Manastash 19Ridge to Cle Elum, drive from Walla Walla and you'll see 20wind turbines. World did not come to an end. 21It is -- I hope the EIS will put some information 22into -- regarding the existing implemented recycling 23technology for wind turbine blades. It's not a maybe. It's 24being done as we speak. 25I also hope the EIS will address or cover the 1potential of the solar panels to support farmers who want to 2implement agrivoltaics. And many -- many of the speakers 3may not have focused on this, but the owners of the land -- 4farmers -- will also benefit from the steady stream of 5revenue from electricity to stabilize their farming coms and 6make it easier for them to stay on the farm. I grew up on a 7farm, so I know something. 8That's all I have to say. I think it's a good 9idea, and I hope it proceeds. Thank you.	Agreement with the Project	Comment acknowledged.	n/a	n/a

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Barbara Buckmaster	1131403	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 17SPEAKER BUCKMASTER: Thank you for your time. 18Barbara Buckmaster. B-A-R-B-A-R-A, Buckmaster, 19B-U-C-K-M-A-S-T-E-R. 20Pleased do not allow Scout Clean Energy to ruin 21our most beautiful Horse Heaven landscaping by constructing 22wind turbines. 23I own 200 acres -- a 200-acre farm that borders 24the base up the hills where the turbines are proposed to be 25erected. I really do worry that this will lower the value 1of my property for years to come. I'm concerned about the 2flashing lights that will be nothing but a nuisance at 3night, and they are monstrous eyesores. 4And I truly believe they will affect our habitat, 5and so goes the list of our complaints. I was strong -- I 6was approached by Scout Clean Energy when they first came to 7our community hunting for a pathway to transport their power 8to the power grid. And truly, at first it seemed like it 9was a great idea, says this country is working to clean up 10our environment. 11Once I really started to look into this and after 12legal advice and advice from community developers, I felt it 13was best that I ran, and I ran fast. 14I do not feel Scout Clean Energy has this 15community in heart. What they have at heart is the 16opportunity to line their pockets and the pockets of their 17investors. 18They came to our area scouting for a sweet place 19to install their turbines, and what -- that we really don't 20need at this time. We have an abundance of power. We have 21nuclear power and we have hydropower already in this area, 22and when the time arrives when this community needs support 23from -- our community will support anyone when it's time 24that we really need the extra power. 25But why? Why do we need to agree to this when we 1really do not need this windmill in our area at this time? 2Oh, sure, yes, everybody, I've heard you. We will have 3extra jobs.	Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
			Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
Kathryn Knutson	1131405	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 10SPEAKER KNUTSON: Kathryn Knutson, 11K-A-T-H-R-Y-N, K-N-U-T-S-O-N. 12From the research I've done, I think that the 13Horse Heaven Hills Wind Farm will have negative consequences 14for the endangered Washington state ferruginous hawks and 15the sensitive areas the hawk needs to be able to hunt and 16nest in. 17And as I stated before in my previous comments 18submitted to you, the Horse Heaven Wind Farm has no 19meaningful compensation proposals, nor any real mitigation 20efforts for the negative effects suffered from the proposed 21wind farm for the hawk. 22So please do not approve this industrial-sized 23wind farm, the endangered Washington state ferruginous hawk 24should not be sacrificed to meet the green energy goals set 25forth by Washington State. 1In addition, the US Wildlife Service estimates 2that between 140,000 and 500,000 bird deaths occur at wind 3farms each year. And the most significant threat is posed 4to species of the large threatened and high conservation 5value birds such as the Washington state ferruginous hawk. 6In addition, my farm is within a couple of miles, 7probably less, of this massive wind farm, and my farm is in 8a conservation reserve program for the ferruginous hawk. 9So that's why I have concerns about this -- of 10this massive project and how it's going to affect what I'm 11doing. Thank you.	Wildlife and Habitat	Impacts to wildlife, including ferruginous hawk, are addressed in section 4.6 of the EIS. This section also describes mitigation measures intended to reduce impacts.	4.6	n/a

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Barbara Thompson	1131407	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 24SPEAKER HERKE: Okay. My name is Barbara 25Thompson. B-A-R-B-A-R-A, T-H-O-M-P-S-O-N. 1I am against the turbine intrusive wind turbine 2project. I heard the gentleman speak a little bit earlier 3about how they parasail, paraglide off of Heaven Hills, and 4I can attest to that because they've landed in my backyard. 5And we actually have a lot of paragliders who use Horse 6Heaven Hills to recreate in. 7The other -- I've already submitted most of my 8comments, but one of the things that blares out to me is 9that all of the wildlife and protected species, in the 101990s, a whole logging industry was shut down for the 11spotted owl, and I don't understand how all these rules can 12be submitted and changed to put in a wind farm, solar farm, 13and willy-nilly make these changes. 14So later on in an agricultural area like this and 15they put in an industry like that, it -- political climate 16changes in the state to be able to go and put other 17industries in agricultural areas. 18And I'd also like to know about the economics of 19it, since they've been building wind farms -- 2004, there is 20a number that popped up in one of the articles that I was 21reading that they spent $90 billion on wind farms, and yet 22they only contribute seven percent of our nation's total 23electrical energy needs. Their lifespan is only 10 to 20 24years, and at the end of their operation, they have to be 25decommissioned, all tracked to the midwest and buried in 1special landfills. 2I don't understand nuclear power --	Recreation	As part of Mitigation Measure R-1, the Applicant is required to develop and maintain an adaptive safety management plan to keep recreation enthusiasts safe. Paragliding is an unofficial recreational activity at the launch locations on public lands closest to the Project.	4.12	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Energy and Natural Resources	The Project's Energy Natural Resources Section of the DEIS includes recommended mitigation measures that would reduce or compensate for impacts related to energy and natural resources consumption during the Project's construction, operations, and decommissioning stage, such as recycling of all components of the Project that have the potential to be used as raw materials in commercial or industrial applications.	4.7.2.4 Applicant Commitments and Identified Mitigation	n/a
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
Carl Baker	1131411	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 9SPEAKER BAKER: Thank you. Carl Baker. 10C-A-R-L, B-A-K-E-R. 11And I'm in favor of the project. I'm pretty 12sympathetic to the concerns that have been raised, but I do 13think that the involved landowners and the business 14involved, you know, should be able to get to use their 15resources to make money and engage in economic activity in 16our community. So I don't -- I don't see any -- that we 17have enough negative effects from this project to stop it. 18So that's all I have to say. Thank you.	Agreement with the Project	Comment acknowledged.	n/a	n/a
Lloyd Lieske	1131413	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 25SPEAKER LIESKE: Okay. First name Lloyd, 1L-L-O-Y-D; last name Lieske, L-I-E-S-K-E. 2I am not in favor of this oversized, badly located 3wind turbine proposal. It's located on prime land, prime 4farmland. We need to be savoring and relishing the 5bountiful farmlands in Benton County. These lands are 6highly productive and will be even more valued as 7populations worldwide continue their explosive growth. 8Two weeks ago the editorial page in the Tri-Cities 9made the statement that the Tri-Cities would be giving up 10way too much if they go for the wind farms. 11What would they be giving up? They would be 12giving up beautiful vistas that support a wine industry and 13tourism. They would be giving up views that we relish. 14They would be giving up the migratory birds that use the 15Pacific flight path over that area. They would be giving up 16far more than most people realize. 17It's funny. The Endangered Species Act has not 18been mentioned tonight. The ferruginous hawk falls into 19that, and I believe there's a burrowing owl that falls into 20that. 21The Tri-Cities already does have abundant 22electricity. We don't need these wind farms, so why are 23they put here? It just does not make sense. I fear that 24one bad decision can lead to another. 25The governor and Patty Murray did their own study 1on the removal of the Snake River dams. They stated 2alternative power generation must be in place first, before 3the dams can be removed. The four Snake River dams provide 41,000 megawatts of electricity. The proposed wind farm with 5solar panels produces 1,150 megawatts. It can happen. 6Thank you.	Land and Shoreline Use	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Ted Lewis	1131414	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 11SPEAKER LEWIS: Okay. My name is Ted Lewis. 12T-E-D, L-E-W-I-S. 13I agree with all my neighbors who are against this 14wind farm project. It's ill-conceived -- it's an 15ill-conceived plan, and it's going to do more harm than 16good. We don't need it, and we don't want it.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
LEWIS	1131417	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 22SPEAKER J. LEWIS: Okay. For all of the 23reasons -- I'm sorry. (Inaudible) right here with his 24tablet, so I'll start over. 25For all the reasons expressed by those opposing, I 1am adamantly against this massive, intrusive turbine wind 2project. 3We need to encourage more nuclear and hydropower 4projects. Many of the new jobs mentioned at the beginning 5will be numerous, but will be reduced drastically after the 6project is completed. Again, I am adamantly opposed to this 7project. Thank you.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a

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Derrick Stricker	1131421	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 10SPEAKER STRICKER: Good afternoon. My name 11is Derrick Stricker, D-E-R-R-I-C-K, S-T-R-I-C-K-E-R. 12My family and I are not in favor of this massive 13intrusive wind turbine project. The future growth of our 14growing MSA is confined by the Columbia River, which leads 15to the future commercial and residential growth along the 16southern boundary of the (inaudible). 17This project not only interferes, it stops the 18ability of our economy to grow in this region, which will 19severely hurt our supply and demand for population growth, 20economic prosperity and free market principles. 21As a young professional, I'm already planning and 22working towards what best helps our community by 2050. This 23project impacts our future negatively and diminishes the 24history that will be built here in Tri-Cities. Thank you.	Land and Shoreline Use	Planning in Benton County's unincorporated and urban areas is guided by the Benton County Comprehensive Plan. In addition to providing planning guidance for unincorporated areas, the plan addresses regional planning issues and coordinates growth among all jurisdictions.	n/a	n/a
Charles Barnett	1131423	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 2SPEAKER BARNETT: Charles Barnett. 3C-H-A-R-L-E-S, B-A-R-N-E-T-T. 4I'm strongly against this Horse Heaven Hills Wind 5Farm Project. I'm a licensed pilot and enjoy many hours of 6updraft flight along the proposed area of this project, as 7do many large birds and migratory birds that soar along that 8ridgeline. 9This project would prohibit my enjoyment and that 10of the birds of prey and their natural desire to soar and 11hunt for food. I fear that many birds will be killed and/or 12injured because of this project. 13Next, I live in Benton City, Washington. I'm 14about a mile and a half from the project. We have 40 acres 15there. I've lived there for 50 years. The visual 16aesthetics for this project will lower my attitude and my 17property value. 18The movement of the blades during the day and the 19flashing lights at night will be very distracting and 20unnatural to the area. 21This project does not benefit the US manufacturers 22that send our -- that send our tax money overseas. 23The power is not slated to be used here locally. 24It's set to go away from the area. And yet the people that 25are using the power doesn't want it in their backyard. 1That's why they want to put it in our backyard. It just 2doesn't make sense to me. 3I'm strongly against this project. Thank you.	Wildlife and Habitat	Impacts to wildlife and habitat, including birds, are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS including the identification of significant impacts on visual resources associated with the proximity of the Project to residences and other sensitive viewing locations as well as strongly altering the area's landscape character.	4.10	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Dan Wirth	1131425	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 14SPEAKER WIRTH: Okay. It's Dan Wirth, D-A-N, 15W-I-R-T-H. 16And regarding the Horse Heaven Wind Farm, my 17opinion is this country needs all the clean energy it can 18produce, whether it be wind, solar, thermal, hydroelectric 19or nuclear. I am not discounting the continuing need for 20fossil fuels until we can transition to 100 percent clean 21energy. 22In regard to the Scout Windmill Farm, my opinion 23is to use the larger windmills in fewer numbers at the 24farthest distance feasible from view. I do not feel that 25they will cause a detrimental effect to the environment or 1animal habitat. The benefits of the wind and solar farm 2will outweigh any negatives.	Agreement with the Project	Comment acknowledged.	n/a	n/a

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ATKINS	1131430	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 10SPEAKER ATKINS: Okay. First off, I'd like 11to talk about the water issues. On table ES-5 it talks 12about traffic, transportation of traffic and not being much 13of an issue. But there is a letter from the Port of 14Walla Walla saying that they can support the Horse Heaven 15Hills Wind Project with 40 water trucks per day. And it 16doesn't state how many gallons these trucks are, and it 17doesn't state a route they take. So that is a significant 18impact to the community. 19Also on table ES-3-B, it says waste water is 5,000 20gallons per day, but it doesn't state how they're going to 21get rid of that. So there should be something -- it also 22states ENR-5, they're going to capture and recycle wash 23water. They should have a plan for that. And as I stated 24though, the water trucks will come from Wallula, Dodd Road. 25That's a (inaudible). 1Regarding the shadow flicker SF-2, it has a 2one-year complaint line to be reassessed after one year; 3that's if you have a complaint, you can call in and they'll 4log it down. Well, if they're going to log it down, they 5should give a log number to the person who is calling in to 6complain so that they can follow up with EFSEC and be sure 7the log -- the issue is being addressed. 8The other thing is, who is going to have oversight 9of this project? With all these mitigation issues, somebody 10needs to be oversight of what's going on. Who is going to 11pay for that oversight? Washington residents. 12And how are we to know that Scout Energy is being 13honest and truthful, because when you look at -- Washington 14state should have full and control power over all these 15mitigating issues. That means to stop what they're doing, 16to halt the project to make sure they're in compliance.	Transportation	See Section 4.14 of the Final EIS, which discusses potential impacts on transportation resources from the Project.	4.14	The FEIS was finalized to include information provided by the Applicant in the new Transportation Impact Analysis.
			Water Resources	The ASC indicates that wastewater would be discharged to an on-site septic system during operations. The on-site septic system would be permitted and installed according to Washington's Waste Water General Permit Program and Water Quality Standards for Surface Waters of the State. No discharges would occur to waterbodies. Impacts to waste streams are discussed in Section 4.15.	4.15	n/a
			Visual Aspects, Light and Glare	Comment in regard to SF-2 noted.	4.10.2.2	Updates to the "complaint line" for shadow flicker and other areas of impact are under consideration. Revision to be drafted based on these updates.
Judy Guse	1131434	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 24SPEAKER GUSE: Judy Guse, J-U-D-Y, G-U-S-E. 25Who will be liable when there's a turbine fire 1that spits oil-laden debris over vast areas igniting further 2fires and spewing smoke and fumes from dangerous chemicals 3for miles into the atmosphere, uncontrolled or managed. 4Fires from turbines are extremely toxic. Who knows what the 5ultimate damage these toxic plumes will be to people, 6particularly to children and the elderly and to wildlife and 7fish and rivers and streams. 8Because of the turbine height, the fire department 9crew can do little but watch it burn itself out. Our county 10doesn't have a fire department with resources, knowledge or 11equipment to fight a fire on a 671-foot tall turbine in a 12desert where there are copious amounts of tumbleweeds and 13dried grasses that burn rapidly and spread quickly to 14surrounding homes. Hundreds of acres can be consumed in a 15single turbine fire, and just one fire incident can cost up 16to 4.5 million to contain. 17Who will be liable for the damage to crops, the 18loss of human life, homes and animals? 19We are dealing with high voltage machines called 20aerogenerators high in the sky, operating with hundreds of 21gallons of oil and lubricants subject to fires. Research 22suggests that one of the main ignition sources for fires in 23turbines is lightning strikes. 24We have a lot of dry lightning strikes in our 25area. Our area is a high fire risk because of our desert 1climate, where our vegetation is a primed tinder box for 2fire in the summer. 3Wind developers provide no protection to 4individuals or communities that have these wind projects 5imposed upon them with lack of control, regulation and 6protection for people, animals, landscapes and communities. 7There is no universal fire protection guideline that is 8enforceable. Any other industry would be and is required to 9have much more accountability. There needs to be fire 10protection in place that will put out a turbine fire before 11it spreads to nearby homes. Thank you.	Public Health and Safety	Impacts of fire risk resulting from the Project are discussed in Section 4.13.2 of the EIS. The Applicant has committed to measures that would mitigate fire risk, which are presented in Section 4.13.2.4 of the EIS. These include the use of fire suppression measures and preparation and implementation of an Emergency Action Plan.	n/a	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Jeanie Polehn	1131435	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 17SPEAKER POLEHN: Okay. It's Jeanie, JEANIE; 18last name Polehn, P like Paul, O like orange, L like Linda, 19E like Edward, H like Henry, N like Nancy. 20And I have submitted these comments to EFSEC 21already, but I want to bring out that I have not seen 22anything in the EIS where they have contacted Washington 23State Farmland Preservation. And we're going to be losing 24that farmland, and we need that -- the farmland to eat, 25folks. And the contamination of that farmland with 1(inaudible), which become hazardous materials and cannot be 2removed from those soils, so it will be basically poisoned. 3We'll have the loss of visual scenery. No photos 4are provided in that EIS of actually seeing what the 5homeowners will see, as well as their -- the loss and 6valuation of their property. 7And then we have blowing dust, where we can't even 8see the streets and the houses across from us. And this 9will add to that blowing dust scenario and impact people's 10health and cause health issues. 11Also, I haven't seen anything on tectonic movement 12of the areas where the wind turbines will be located. I 13haven't seen that it's been adequately tested for or 14anything like that in there. 15And then wind turbines do not provide on-demand 16power 24 hours a day, seven days a week so it does not 17interrupt the current power system. And it will also raise 18the cost of electric power, and that hasn't been dealt with. 19On separate from the EIS, the funding for the 20decontamination and decommissioning of the project needs to 21be looked at.	Land and Shoreline Use	An evaluation of the Project's impact on agricultural productivity is provided in Section 4.8.2 of the EIS.	4.8.2	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS. Visual simulations, based on project engineering design, are included in Appendix 3.10-2 including views from residences, recreation areas, and travel routes .	4.10	n/a
			Air Quality	As noted in the EIS, the project will result in temporary fugitive dust emissions which a relatively small when compared with other sources of fine particulate matter emissions in the County. These temporary fugitive dust emissions will only occur during project construction and at the end of the project life during demolition and restoration and will be mitigated through a number of measures including among others: application of water and/or surfactants on disturbed areas to reduce dust, covering stockpiles that could be a source of dust, and limits on vehicle speed on unpaved roads to reduce dust generation. A complete list of mitigation measures can be found in Section 4.3 of the EIS. As noted in the EIS, these temporary emissions are not expected to result in a significant impact to residents. Additional air quality modeling will be performed in the FEIS to address impacts on PM25 and PM10. An onsite Air Quality Mitigation Monitor (AQMM) is proposed during construction to monitor the effectiveness of mitigation measures in real time and direct additional mitigation if necessary.	4.3	4.3 - additional dispersion modeling and results, addition of condition requiring AQMM
			Energy and Natural Resources	The State of Washington currently has 85 renewable power plants operating with a combined generating nameplate capacity of 23,443 MW. In 2019, wind accounted for about 80 percent of the state's nonhydroelectric renewable electricity. Hence, Washington benefits from access to abundant, low-cost energy originating from renewable energy resources. Additionally, an analysis of the Power Generation and Demand of the State of Washington is presented in the Project's Energy Natural Resources Section of the DEIS.	3.7.1.1 Power Generation and Demand	n/a
andrea.grantham	1131437	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 2SPEAKER GUSE: Yes. I just want to say that 3I'm not in favor of this massive wind project.	General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Jose Loera	1131441	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 9SPEAKER LOERA: Wonderful. So I -- let me 10spell my name first. J-O-S-E, last name Loera, L-O-E-R-A. 11I've lived in Tri-Cities for over 35 years. I've 12watched this community grow into just a beautiful, vibrant 13community, and I see absolutely nothing positive with this 14wind farm coming in the Tri-Cities. 15From my perspective, it's going to be detrimental 16to our wildlife. It's going to be detrimental to our scenic 17views. The jobs that they're talking about are going to be 18short-term and only going to be there while they build the 19project, and afterwards, our jobs are going to be minimal, 20is my understanding. 21And then finally, the power company locally is 22saying this isn't something that we need for this community. 23So I absolutely have to say this is a hard no. 24Not interested in the wind farm in Tri-Cities. Thank you.	Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a
			Socioeconomics	Comment acknowledged and is included in the administrative record for the EIS. Construction of the Project would generate economic benefits in the regional economy through direct expenditures for materials and services, as well as new payroll income and both indirect and induced economic benefits. During operation, lease payments to landowners would generate annual benefits to the local economy over the expected 35-year operating life of the Project. The Applicant would also pay taxes to Benton County. Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. The economic analysis did not identify any negative economic impacts resulting from the project.	4.16	n/a
			General - opposition	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
Patricia Loera	1131443	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 7SPEAKER P. LOERA: P-A-T-R-I-C-I-A; last name 8Loera, L-O-E-R-A. 9I would like to voice my opposition to this 10project. I strongly believe that this wind farm project is 11of no benefit to our beautiful local community. 12My main objections are, what is the negative 13impact it will have on our wildlife, our birds, migratory 14and otherwise, and our beautiful natural vistas. Simply 15stated, this is too big of a project. It's too close to too 16many people, and it will impact so many people. 17Our community is growing every day, and this is 18not the place to build a big, giant wind farm project so 19close to metropolitan areas. We need to protect our rural 20natural habitat and Tri-Cities. Thank you.	Wildlife and Habitat	Impacts to wildlife and habitat are addressed in section 4.6 of the EIS.	4.6	n/a
			Visual Aspects, Light and Glare	Comment noted. Impacts on landscape character and views are described in Section 4.10 of the EIS.	4.10	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Dana Ward, conservation chair for the Lower Columbia Basin Audubon Society	1131445	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 1SPEAKER WARD: Yes, this is Dana Ward, 2D-A-N-A, W-A-R-D. I'm the conservation chair for the Lower 3Columbia Basin Audubon Society situated in the Tri-Cities. 4My comments will be strictly to the biological 5resources. Thank you for allowing me to make a comment. 6The seriousness of climate change and the 7resulting impact to human life, the environment and welfare 8of the earth relies on intelligent actions to limit carbon 9emissions from fossil fuels and other sources. The 10construction of solar arrays and wind turbines are important 11steps to slow or even reverse global warming. 12The Lower Columbia Basin Audubon Society supports 13well-planned solar and wind turbine projects, but they must 14be sited reasonably, they must take into account, as a 15minimum, biological habitat and biological resources that 16would be impacted. From our review of the DEIS, it falls 17well short of attaining this goal. 18To allow the adequate environmental review, the 19final EIS for the Horse Heaven Hills must include a specific 20site design identification and analysis of reasonable 21alternatives that minimalize or eliminate impacts to the 22environmental resources such as disappearing shrub-steppe, 23avian species such as ferruginous hawks and burrowing owls, 24as well as prey species such as (inaudible). 25In a broader sense, the EIS must address the 1likely environmental impacts associated with specific siting 2decisions and specific mitigation measures with associated 3performance measures that address the regional impacts to 4birds, mammals and plant populations and their habitat 5connectivity. 6We have submitted 20 pages of specific comments, 7and we have a review of four issues the DIS does not provide 8enough information to analyze likely environmental impact. 9Issue 2. The draft environmental impact --	Chapter 2 - Proposed Action and Alternatives	Comment acknowledged and is included in the administrative record for the EIS.	2.0	n/a
			Vegetation	The EIS considers each component of the Project (e.g., micrositing corridor, east solar field) separately in the impact analysis for vegetation. The potential impacts from each component on vegetation are described in Section 4.5. Impacts to shrub-steppe and other priority habitat are assessed based on the present Project plan and layout. The Applicant has provided commitments that will mitigate impacts and EFSEC has included additional mitigation measures. Additional mitigation measures include a As-Built Report and Offset Calculation (Veg-4) and Detailed Site Restoration Plan (Veg-7). The As-Built Report and Offset Calculation would include a final calculation of all areas of disturbance which will be used to calculate final offset requirements. The Applicant has voluntarily included rabbitbrush shrubland at the temporary and permanent offset ratios of shrub-steppe. It also includes provisions to require offsets at permanent disturbance ratios if temporary disturbance areas are not successfully revegetated within the timeframe determined by EFSEC. The Detailed Site Restoration Plan would outline the revegetation plan for decommissioning. In addition, this would include provisions for adaptive management based on the revegetation following construction and a requirement for monitoring. Based on the Project impacts and applied mitigation no significant unavoidable impacts were identified; however, impacts to priority habitat were identified as a cumulative impact due to the decline of shrub-steppe throughout Washington, which is discussed in Section 5.2.2. Priority plant species are also addressed in Section 4.5. Based on survey completed by the Applicant no special status plant species were observed. Section 4.5.2.4 includes additional mitigation measures for special status plan species including pre-disturbance surveys and special status plant species education for workers on site. These mitigation measures are designed to minimize impacts to special status plants.	Section 4.5, 4.5.2.4, and 5.2.2	n/a
			Wildlife and Habitat	See response to Comment 1119045	4.6	n/a
Lori Mattson, CEO of the Tri-City Regional Chamber of Commerce	1131450	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 20SPEAKER MATTSON: I'm Lori Mattson, L-O-R-I, 21M-A-T-T-S-O-N. I'm president and CEO of the Tri-City 22Regional Chamber of Commerce. 23As the fifth largest chamber in Washington, 24representing over 900 businesses, ranging from sole 25proprietors to the largest employers in the bi-county 1region, we urge EFSEC to consider our community's voice in 2this proposal. 3The state energy strategy asserts that public and 4community participation is important to ensure energy policy 5is informed by local knowledge, meets local needs and is 6viewed as legitimate by the local community. 7By the state's own analysis, this region's 8hydroelectric and nuclear power is 93 percent non-emitting, 9and impacts a substantially smaller footprint with several 10times the effective load carrying capacity. 11This project would be just a few miles from a 12major population center of 300-plus thousand residents. The 13size and scale is inconsistent with the Benton County Land 14Use Plan, inconsistent with the character of the surrounding 15land use, and at the height of the Space Needle, these 244 16wind structures would create an incredible barrier to our 17local economy. 18Recreation and tourism provides over $500 million 19annually to our local economy. Suggested mitigation to 20recreation and tourism impacts amount to suggestions that 21regional partners wholly identify new recreational 22activities. 23Suggested light and glare mitigation strategies do 24not account for the vast difference in scale that the 25proposed turbines are from existing installations 1encompassing 72,000 acres of land and exceeding the Space 2Needle in height area surrounded by no other infrastructure 3of the same height and number. 4Please consider the negative impacts to the 5Tri-Cities and recognize that this project is not informed 6by local knowledge, does not meet local needs, and is not 7viewed as legitimate by the local community.	Land and Shoreline Use	For aspects of the Project's design that may not be in alignment with Benton County Code 11.17.070 Growth Management Act Agricultural District or the Benton County Comprehensive Plan, the Washington Energy Facility Site Evaluation Council (EFSEC) would review discrepancies through an adjudicative process intended to resolve disputes between the local government and Horse Heaven Wind Farm, LLC (Applicant).	4.8	n/a
			Socioeconomics	Comment acknowledged. Appendix 4.16-1 of the Draft EIS presents an input-output economic modeling (IMPLAN analysis) for the project. IMPLAN is widely used to assess the economic impacts of energy and variety of other projects. The IMPLAN model divides the economy into 546 sectors, including government, households, farms, and various industries, and models the linkages between the various sectors. The linkages are modeled through input-output tables that account for all dollar flows among different sectors of the economy. The economic analysis did not identify any negative economic impacts resulting from the project. Potential Project impacts and suggested mitigations related to land and shore line use and recreation are described in sections 4.8 and 4.12 of DEIS.	4.16	n/a
			Recreation	See Section 4.12 of the Final EIS, which discusses potential impacts to recreation resources from the Project.	4.12	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Doug Fearing	1131453	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 10SPEAKER FEARING: Doug Fearing, D-O-U-G, 11F-E-A-R-I-N-G. 12I am adamantly opposed to this project. I'm a 1374-year community resident, and I'd like to address a few of 14the claims regarding wind farms and their impact. 15We hear claims made about how many houses a 16particular wind farm will power. Maybe it's 1,000 or even 172,000. The truth is if the wind isn't blowing, they won't 18even power one house. 19Claims are made that wind power's economical to 20produce. I've read wind turbines will never make it to the 21breakeven point, energy production versus cost during the 22life of the generator. We hear that wind power is a great 23energy source. Well, so is lightning. But they both share 24a common problem called reliability. 25We'll hear arguments tonight about the jobs this 1wind farm will create. Earthquakes, tornadoes and tsunamis 2all create jobs. The creation of jobs, in and of itself, 3has nothing to do with the merits of wind energy as a power 4source. 5I understand this project means income, but I ask 6our union workers to take a hard look at our -- their 7community and consider the fact that these are short-term 8jobs with long-term results, results that disfigure our 9community, destroy our skyline and essentially and 10effectively will shut down one of the only true corridors 11for growth the city of Kennewick has. 12The Horse Heaven Hills are not scablands. They're 13occupied by farms and numerous multi-million dollar homes 14and is prime view property. The undisputed fact is that 15building these machines near a residential area severely 16devalues property and homes. 17Windmills aren't built on national monuments or in 18parks because why? They're an eyesore. If these wind 19turbines are built along the crest of Horse Heaven Hills, we 20might as well build a big wall here with a sign hanging from 21it saying, Here's where Kennewick ends. 22This last year I spoke at a public meeting --	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Dave Drollinger	1131458	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 3SPEAKER DROLLINGER: Yes. My name is Dave 4Drollinger, D-A-V-E, D-R-O-L-L-I-N-G-E-R. 5I'm here to simply state that I'm adamantly 6opposed to this project. I think it's just another good 7old-fashioned boondoggle like this country has seen off and 8on since its inception. And I think it's also, 9unfortunately, a virtue-signaling scheme to make people feel 10good. 11We've got -- this type of energy is hugely 12inefficient. Nuclear power is much greener, much more 13prolific of an energy producer or of magnitude greater. 14What this project would do, this -- like the gentleman 15before me said, that the only growth Kennewick has is to the 16south, and all of that is prime real estate property whose 17property values are going to be incredibly devalued because 18of their existence. And there's hardly a way to put a price 19on it, but it will be, over the course of 50 years, easily 20in the tens of millions of dollars. 21And so the bottom line is this project is not 22necessarily for here or any other place in the country, and 23the -- the appearance of it is like a graffiti, and it's 24graffiti that the proponents and who's going to benefit -- 25the few that are going to benefit from this, they wouldn't 1want this graffiti on their home or their neighborhood any 2more than we want it. Thank you.	Chapter 1 - Project Background	Comment acknowledged and is included in the administrative record for the EIS.	n/a	n/a
			Socioeconomics	The impact of wind farms on property values is addressed in the EIS.	4.16	4.16 - Discussion of Project impacts on property values
Ira Johnson	1131461	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 5SPEAKER JOHNSON: Hi, I'm Ira Johnson. 6I-R-A, J-O-H-N-S-O-N. 7And I am against this scam. That's what it is; 8it's a scam. Take all the pros that we've heard tonight and 9all the cons for and against, and there's no reason for 10these to be put anywhere, let alone our backyard. 11They do -- first off, they're made in China, 12people. Why are we making another country rich? Why don't 13we make them here if you're going to make them. 14They're not recyclable. Where you going to put 15the junk? Do like China? We send them our garbage, they're 16going to take it out to sea and dump it; then it'll wash 17ashore? 18It's not dependable. They wear out. And mainly, 19they're not cost effective. If it wasn't for us taxpayers, 20the federal government, subsidizing those things, they 21wouldn't be put in. If they're so dependable and so cost 22effective, let that engineering company who wants to put 23them in, put them in at their expense and we'll see if it 24happens. It won't. 25This will affect banks, this will affect 1investors, and most importantly us taxpayers who are here 2faced with the consequences. 3Now, of course, you can justify anything. You've 4got to realize, I'm from Texas, and I learned years ago from 5a guy named Billie Sol Estes, who sold fertilizer tanks and 6they didn't even exist. So you can sell and justify 7anything, but I beg you to take and pray over this when you 8make your decision. 9Thank you so much for letting me speak.	General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a

Table 10-1A Horse Heaven Project Public Comments & Responses Tracking Table

From Granicus Engagement Tool			Public Comment Responses			
Author	**Unique ID**	**Comment**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Travers Bracy	1131465	02/01/2023 Horse Heaven DEIS Public Meeting Transcript Verbal Comment 15SPEAKER BRACY: Travers Bracy, T-R-A-V-E-R-S, 16B-R-A-C-Y. 17I'm not going to say anything that hasn't already 18been said by most of the people on this call, but I'd just 19like to point out that community members that have talked 20and pointed out their opposition are all from around here. 21The people who seem to be for this wind project all seem to 22be from -- not from around here, especially the union 23members who have been put up and given the canned speeches 24and talking points by their international organization. 25There's plenty of job opportunities for 1electricians, contractors, construction workers in this 2industry -- in this area, and this wind farm won't even be a 3drop in the bucket. There's electricians that are looking 4for jobs, union and non-union, all the time, and there's 5plenty of work for them. So that's not a justifiable excuse 6to put this wind farm in. 7The best argument against that I've heard tonight, 8that I'd like to reinforced, is the lack of water and a good 9plan for where they're going to -- how they're going to get 10rid of these windmills when they're all worn out. 11Another thing that I haven't heard tonight is the 12antelope population has been reintroduced to the Horse 13Heaven Hills. It's grown greatly in the last few years. 14It's pretty awesome to see the herds up there. When you 15drive through the roads and the farmlands, you'll see them 16grazing along, very good environment for them. So that's 17another impact to the environment that these constructions 18and windmills will impact. 19I don't know any other animal population that 20lives under windmills, but I just urge the committee to do 21the right thing and turn down this proposal. Thank you.	Water Resources	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation.	Section 3.4.1.5 and 4.4	The FEIS will be updated to reflect the Applicant's updated ASC, which includes removing the City of Kennewick as the water supplier and replacing with the information provided in the updated ASC.
			General - Recyclability	In accordance with recommended mitigation ENR-7, to minimize the need for future extraction of natural resources, the Applicant would recycle all components of the Project that have the potential to be used as raw materials in commercial or industrial applications. Also, as part of the decommissioning process, the Applicant would repurpose or reuse the Project's high-value components. Recyclable materials would be reduced to a transportable size and removed from the site to an appropriately designated recycling center in accordance with local, state, and federal solid waste regulations. For example, the blades would be cut down or dismantled into smaller sections for transport by regular-sized haul trucks. Steel, iron, aluminum, copper, concrete, and electronic components of wind turbine foundations, towers, and wiring are recyclable. Although, currently many wind turbine blades are being transferred to landfills, in recent years, several companies have developed recycling and repurposing technologies for retired turbine blades. These technologies include shredding the fiberglass blades and turning them into cement, textiles, synthetic materials, and plastic pellets. Therefore, it is anticipated that by the time that the project will be decommissioned, recycling of turbines blades will be a general practice and less challenging compared to current days.	4.7.2.4	n/a
			Wildlife and Habitat	Impacts to wildlife are addressed in section 4.6 of the EIS.	4.6	n/a

Table 10-1B Horse Heaven Project Public Comments & Responses Tracking Table

Submission-1102200			Public Comment Responses				
Author	**Unique ID**	**Recommendation/Contribution**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Scout Clean Energy	1102200-1	Section ES-2.1 of the DEIS reflects the maximum nameplate generaing capacity of up to 1,150 megawatts for the facility. The Applicant notes that the updated ASC, Section 2.3, provides clarification on the generating capacity of the project as follows: (since the time of the initial application) "BPA has since allowed interconnection requests that facilitate greater installed aggregate nameplate generating capacity, provided the instantaneous generation is controlled to not exceed the grid injection capacity, which is the maximum energy in MW that can be injected into the transmission grid at any instant in time without exceeding the allowable authorized grid injection capacity set by BPA (the transmission provider). Consequently, a generation facility may have a greater nameplate generating capacity than grid injection capacity by installing more Turbines or solar modules. This change by BPA does not alter the facility components proposed for the Project." As a result of this clarification, the Applicant requests that total nameplate generating capacity of the facility not be restricted by any Site Certification Agreement, but that any limits be identified based on project component impacts as described elsewhere in the ASC and DEIS. For example, no more than 244 turbines would be installed under any scenario; turbines would be no higher than 496 feet (under Turbine Option 1) or 671 feet (under Turbine Options 2); etc.	Executive Summary	An explanation of the Project's nameplate generating capacity and potential injection capacity will be provided in the Executive Summary and EIS.	n/a	Description of potential injection capacity
Scout Clean Energy	1102200-2	Revise CR-1 4th bullet to read " *Notify Tribal representatives by offering the opportunity to be included during any ground-disturbing activities (Cultural Resource Monitor)*" . This change is necessary to accommodate the desires of the First Nations for active involvement. Construction activities must be allowed to proceed if the First Nations choose to not be present.	Executive Summary	Acknowledged. Suggested revisions will be applied in the FEIS.	ES-35; Section 4.9.	Suggested revisions will be applied in the FEIS.
Scout Clean Energy	1102200-3	Delete duplicate Vis-4 mitigation action.	Executive Summary	This mitigation measure will be removed based on technological limitations of applying a color treatment to the solar panels, the primary generator of visual impacts. Installation of opaque fencing (VIS-6) would reduce impacts where level views of the arrays would occur, such as from KOP 12 (as simulated), reducing visibility of the PV support structures. Based on application of VIS-6, color treating the PV support structures would not be required.	ES-38 and 4.10	Mitigation measure VIS-4 will be removed.
Scout Clean Energy	1102200-4	Recommend replacing Tables 2-2 and 2-3 in the DEIS with Table 3.4-14 in the ASC (also Table 3 in the Revised HMP Appendix L to the ASC) submitted in early January 2023), where impacts are shown, and Table 4 in the Revised HMP, Appendix L to the ASC, where the WDFW supported mitigation ratios are shown. Utilizing the impact acreage numbers in the tables in the ASC and Appendix L will make the impact and mitigation discussions in the DEIS align with standard practice in Washington EFSEC permitting. Changes in those tables should be carried through the document to ensure consistency. Calculations of permanent and temporary disturbance in Tables 2-2 and 2-3 do not coincide with definitions of permanent/temporary disturbance used in ASC. The draft EIS definitions of permanent vs temporary disturbance are not consistent with precedent for calculating impacts for solar facilities in Washington. The EIS includes all of the acres of habitat that will be modified by the Project (e.g., vegetated areas under solar arrays) as "permanent" impacts, which result in inflated assessments of Project impacts in multiple sections of the draft EIS. In the absence of WDFW solar siting guidelines, Applicants, EFSEC, and WDFW have been relying on the 2009 WDFW Wind Power Guidelines to inform mitigation decisions on solar projects. As projects have been proposed WDFW and EFSEC have accepted the characterization of impacts to habitat under solar panels as modified or altered, rather than permanent (which is equivalent to impermeable surfaces as defined in the 2009 Wind Power Guidelines) or temporary. Along with that separate characterization for habitat under solar arrays WDFW has supported modified mitigation measures that are less than those outlined for permanent (i.e. impermeable surface) impacts in the 2009 WDFW Wind Energy Guidelines. The mitigation ratios proposed for modified habitat are consistent with other recent solar projects approved by EFSEC (e.g., Goose Prairie Solar) and were supported by WDFW during coordination meetings in 2022. The intention was to align with the permitting norms that have been established by WDFW and EFSEC in the absence of solar siting guidelines, and to distinguish between mitigation requirements for impermeable surfaces such as roads or concrete foundations vs. the area inside the solar fenceline, which is modified but still provides wildlife habitat.	Chapter 2 - Proposed Action and Alternatives	Will review comment with other SMEs and provide applicable changes in the Final EIS.	Chapter 2	
Scout Clean Energy	1102200-5	A review of NWI data against the micrositing corridor did not identify any emergent or palustrine wetland features. Detailed surveys did not identify wetland features within the micrositing corridor. Request EFSEC provide a map showing the location of this feature.	Water Resources	Based on the NWI data, one freshwater emergent wetland is mapped as crossing the micrositing corridor (see Figure 3.4-1 inset map). The DEIS indicates in Section 3.4.1.1 that no wetlands were delineated within the Micrositing Corridor or Solar Siting Areas during field surveys.	Section 3.4.1.1 and Figure 3.4-1	n/a
Scout Clean Energy	1102200-6	The draft EIS estimate of 842 acres of existing impervious surface within the Project Lease Boundary is overly conservative. Recommend revising this estimate consistent with Comment #4 on ASC Section 2.1.1. Developed/disturbed habitat contains, but is not the same as, impervious surfaces. As described in Section 3.4.1.1 of the ASC, habitat mapped as 'developed/disturbed' includes roads, buildings, and other structures, but also includes vegetated areas. "Vegetation that does occur in these areas consists primarily of ruderal species (i.e., species that colonize or thrive in disturbed areas), including many non-native species."	Water Resources	Will review comment with other SMEs and provide applicable changes in the Final EIS.		
Scout Clean Energy	1102200-7	Page 3-149, first paragraph of section says "45BN2092 and 45BN2146 were identified through shovel testing.". Recommend changing the third sentence in 3.9.2.1 to read "Precontact isolates 45BN2092 and 45BN2146 were found on the ground surface and verified to be isolates through shovel testing".	Historic and Cultural Resources	Thank you, the suggested revision will be made.	3.9.2.1	Revise sentence to read: 'Precontact isolates 45BN2092 and 45BN2146 were found on the ground surface and verified to be isolates through shovel testing.'
Scout Clean Energy	1102200-8	Page 3-152, third full paragraph, states "..and HRA determined that neither site is eligible for listing in the NRHP...". Since HRA can only recommend action, the word "determined" should be replaced by "recommended".	Historic and Cultural Resources	Thank you, the suggested revision will be made.	3.9.2.1	Change "determined' to 'recommended.'
Scout Clean Energy	1102200-9	Page 3-154, the grain elevator discussed here (ID 722995) and the two Nicoson buildings (724937 and 724938) were recommended as not eligible and DAHP concurred (see **Attachment 2** for concurrence letter); however, they are shown on WISAARD as eligible. HRA contacted DAHP to assess this discrepancy and DAHP subsequently issued a revised Determination of Eligibility (**Attachment 2**) concluding that they are eligible. However, they will not be physically disturbed by the project and there will be no significant impact to the resources. It is recommended that the 3rd paragraph on page 4-282 be revised as follows: The ~~two remaining four historic-period architectural resources – an electricity transmission line, resource 721666 (detailed in Section 3.9), the Nicoson Rd. barn storage building (resource 724937), the Nicoson Rd. cribbed grain elevator (resource 724938), and a grain elevator (resource 722995) – are eligible for listing under the NRHP. Any impacts on these resources would be high in magnitude since they are evaluated as eligible for listing in the NRHP. The Project will impact the environmental setting of these resources via sSome local, short-term, unavoidable impacts are anticipated to occur on the environmental setting of the resources, through the alteration of the viewshed, though the integrity and context of location would remain (with no impacts occurring to the structures resources themselves). However, setting is not one of the most important aspects of the resources' integrity, and a change to the setting does not result in a loss of their integrity (i.e., their ability to convey their NRHP significance), so the impact on the four resources would be negligible in magnitude.~~	Historic and Cultural Resources	Thank you. The revised concurrence letter from DAHP, dated December 10, 2021, will be reviewed and the FEIS will be revised accordingly. Aside from physical impacts, the FEIS must assess whether there will be direct impacts to the viewsheds of these cultural resources.	3.9.3.2; 4.9.2.1	To be determined once all relevant information is reviewed. Assessment of significant impatcts is pending.
Scout Clean Energy	1102200-10	Page 3-156, first paragraph of the section states "These include two sites with mixed components (e.g., both precontact and historic cultural materials)." Recommend changing "two" to "one", as only one site (45BN2153) has both types.	Historic and Cultural Resources	Thank you. The sentence is incorrect, and it should refer to one multicomponent site (both precontact and historic archaeological materials) and one 'mixed component' resource. The latter refers to Site 45BN2148, is a cultural resource featuring an archaeological surface scatter and historic-period architectural remains (discussed in Section 3.9.4). The FEIS will be revised to state the correct number of cultural resources identified within the Area of Analysis.	3.9.6	Review all relevant information from the Applicant and revise the summary of historic and cultural resources identified within the Area of Analysis. Clarify total number of archaeological resources (precontact, historic, and multicomponent), architectural resources, and resources with both archaeological and architectural cultural materials.
Scout Clean Energy	1102200-11	Table 3.9-3, Page 3-158, in the Table under 17302 County Well Road, recommend adding the other three Property IDs "724940, 724941, and 724942".	Historic and Cultural Resources	Thank you. The three additional Property IDs will be added to Table 3.9-3 under 17302 County Well Road.	3.9.7	Revise Table 3.9-3 to include all relevant Property IDs and updated NRHP Eligibility Statuses.
Scout Clean Energy	1102200-12	Table 3.9-3, Page 3-158, in the Table under 45BN2148, this number is the archaeological component, the architectural component is the Nicoson Farmstead and DAHP Property ID's 724937 and 724938. Recommend changing "45BN2148" to "Farmstead Property ID's 724937 and 724938". Page 4-282, third full paragraph, instead of 45BN2148, it should be the Nicoson Farmstead - the archaeological site 45BN2148 is unevaluated for NRHP eligibility. Recommend changing "45BN2148" to "Farmstead Property ID's 724937 and 724938" at this location. Similarly, Table 4.9-3, page 4-285, 45BN2148 is the archaeological component; the architectural component is the Nicoson Farmstead and DAHP Property ID's 724937 and 724938. Recommend changing "45BN2148" to "Farmstead Property ID's 724937 and 724938".	Historic and Cultural Resources	Thank you. Archaeological Site 45BN2148 and architectural resources listed under 17302 County Well Road will be listed separately in Table 3.9-3. All unique DAHP Property IDs will be listed. The text in 4.9.2 and Table 4.9-3 will be revised to list archaeological site 45BN2148 and architectural resources documented at 17302 County Well Road separately.	3.9.5; 4.9.2	Revise Tables 3.9-3 and 4.9-3 to list archaeological Site 45BN2148 and architectural resources located at 17302 County Well Road separately. List all unique DAHP Property IDs. For Section 4.9.2, revise all references to architectural resources at 17302 County Well Road to include their unique DAHP Property IDs only. Remove all references to Site 45BN2148 when discussing architectural resources.
Scout Clean Energy	1102200-13	Instead of the current language of mitigation measure Geo-1, "To limit erosion and disturbance of natural soil profiles, soil disturbance would be postponed when soils are excessively wet, such as following a precipitation event," if EFSEC chooses to make this proposed mitigation a condition of the SCA, we recommend revising the measure to read: "Minimize soil disturbance activities with the potential for soil compaction when soils are saturated, such as following a major precipitation event (e.g., 5-day antecedent rainfall of greater than 1.1 inches in the dormant season or greater than 2.1 inches in the growing season). Direct construction away from areas with saturated soils and where drainage may concentrate until soils are no longer saturated, and limit vehicular traffic to established access roads. Where possible, leave existing vegetation root structure intact to enhance soil stability and infiltration capacity. Where necessary, utilize BMPs such as low-ground pressure and/or long- reach equipment, gravel or timber pads, and localized engineered drainage improvements (e.g., interceptor drains, detention basins). Where soil compaction is observed to have occurred, decompact subsoils to a minimum depth of 18-inches or as identified in site reclamation plans and lease agreements."	Earth Resources	Acknowledged. Suggested revisions will be applied in the FEIS.	3.2	Suggested revisions will be applied in the FEIS.
Scout Clean Energy	1102200-14	Condition A-1, requiring a speed limit during construction of 15 mph, is unworkable as written and we request that it be removed in accordance with WAC 197-11-660 (c). Heavy equipment (tracked vehicles, cranes, etc) will maintain speeds below 15 mph but it is unrealistic to expect construction workers driving from one part of the site to another to maintain speeds below 15 mph. In addition, maintaining speeds of 15 mph on any public unpaved roads would unreasonably delay local residents. Other measures as described in the ASC will reduce dust generation to an acceptable level during construction. The applicant reviewed site certification agreements previously issued by EFSEC for large scale renewable energy projects (e.g. Desert Claim, Goose Prairie, Kittitas Valley, Whistling Ridge, Wild Horse) and only one had a speed limit specified in the SCA; Kittitas Valley required construction vehicles to be limited to 25 mph. This is a reasonable measure and EFSEC should not require a more restrictive measure for the Horse Heaven project.	Air Quality	Condition A-1 will be revised to limit construction equipment on any unpaved portion of the construction site to 15 mph and to limit other vehicle speeds on offsite publically accessible unpaved roads to 25 mph.	4.3	Revise condition A-1 as noted
Scout Clean Energy	1102200-15	Recommend deletion of W-1. All site ephemeral and intermittent streams are dry for most of the year and work can safely be done in a wider work period than the typical tributary fish windows, which are based on streams with water present and direct connectivity to waters with fish use. As defined in WAC 220-660-110, authorized work times are based on reduction of impacts to fish life at sensitive life stages. Because the streams within the Project boundaries are not fish-bearing and do not have characteristics of streams that can provide fish habitat even if water were present, there would be no impact to fish life stages from Project work completed in the dry. Additionally, WAC 220-660-110 authorizes work outside of the defined fish windows when sufficient mitigation measures are in place that eliminate risk to fish life. Therefore, the concern over work in the streams within the Project boundary is to prevent impacts to downstream, fish-bearing waters such as sedimentation. This protection can be provided with BMPs including working exclusively in the dry and when no significant precipitation is forecast; installation of appropriate BMPs to prevent sediment from entering the stream in the event of precipitation, and prompt restoration of all impacts within channels prior to the end of dry conditions, including returning channels to existing grade and initiating revegetation. With these mitigation measures in place, there is no need to restrict work in the dry stream channels to the August 1 to September 15 window. Mitigation measure W-1 is not necessary to protect fish; less restrictive measures are available and required and adequately protect the resource consistent with state policy and standard measures. The proposed measure is not consistent with state guidelines or policy. Therefore, in accordance with WAC 197-11-660 (a) and (b), the proposed mitigation measure is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA.	Water Resources	Revise W-1 to include observing least risk fish windows if water is present in any ephemeral or intermittent streams.	Section 4.4.3	Revise W-1

Table 10-1B Horse Heaven Project Public Comments & Responses Tracking Table

Submission-1102200			Public Comment Responses			
Author	**Unique ID**	**Recommendation/Contribution**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Scout Clean Energy	1102200-16	Mitigation measure W-7 requires that the 100-year floodplain be clear-spanned. The floodplain is 360 feet wide at the planned crossing location and support structures can reasonably be placed outside of the floodplain. However, construction activities within the floodplain such as crossing with construction vehicles should be allowable in dry conditions with standard BMPs in place to prevent erosion. Recommend revising W-7 as follows: Clear-span the transmission line to avoid temporary disturbance to the 100-year flood plain. Site transmission line poles outside the 100-year floodplain. The mitigation measure addresses physical disturbance of the 100-year floodplain, a CARA. Clear-span would minimize physical disturbance associated with transmission line poles and is not intended to restrict other essential construction traffic activity.	Water Resources	The 100 year floodplain (also known as frequently flooded areas) is consdiered a critical area according ot Benton County Critical Area Ordinance. Any acitivity or development within a critical area is regulated under this Ordinance. Under 15.08.090 "All actions nad developments shall be designed and constructied in accordance with mitigation sequencing (Section 15.08.210) to avoid, minimize and restore all adverse impacts. Applicants must first demonstrate an inability to avoid or reduce impacts, before restoration and compensation of impacts will be allowed." The proposed Project does not qualify as an exemption nor an allowed activity within critical areas. W-7 to be revised to state: "Clear-span the transmission line to avoid temporary disturbance to the 100-year flood plain. Site transmission line poles outside the 100-year floodplain. The mitigation measure addresses physical disturbance of the 100-year floodplain, a CARA. Clear-span would minimize physical disturbance associated with transmission line poles. Essential contruction traffic activity shall be limited in the area to only construction traffic that is essential for installation of the tranmission line. Access through the 100-year floodplain shall be avoided, except by those vehicles directly involved in construction of the transmisison line and access by these vehicles will only occur when soils are dry. All other vehicles shall use roads to deviate around the 100-year floodplain. Any damage including tire tracks and ruts will be rectified to a state that is consistent with existing conditions. "	Section 4.4.3	Revise W-7
Scout Clean Energy	1102200-17	Recommended mitigation measure W-8 would require spill response equipment in every vehicle accessing the site from construction through decommissioning. As written, this mitigation measure would require vendor, agency, and personal vehicles accessing the site to carry spill equipment. Recommend the measure be rephrased to read "Spill response equipment would be stored in ~~every all project-owned vehicles accessing the site, including work trucks and heavy equipment, during construction, operation, and decommissioning.~~"	Water Resources	Revise W-8 as written: "Spill response equipment would be stored in every all project- owned vehicles accessing the site, including work trucks and heavy equipment, during construction, operation, and decommissioning."	4.4.3	Revise W-8
Scout Clean Energy	1102200-18	The proposed mitigation measures W-10 and ENR-5 requiring recycling of solar panel wash water should be deleted because they are inconsistent with WAC 197-11-660, which requires that mitigation measures be related to specific adverse environmental impacts and that they be reasonable and capable of being accomplished. The impact of washing solar panels is correctly identified as 'negligible, temporary, unlikely, and confined' in Table 4.4-4b. Operational impacts on the public water supply are described as 'low', based on an analysis considering that all operational water would come from the City of Kennewick. Please see the Revised ASC submitted to EFSEC on December 30, 2022, for supplemental information on water sources; an alternate water source has been identified that does not rely on the City of Kennewick. In addition, **Attachment 4** provides documentation that Scout will be able to lease water from the Department of Ecology sufficient to supply water during construction and subsequent operations. Any public water supplier with available supply would not be adversely impacted by providing that water for agreed rates; if they do not have available water, they will not sell it. Therefore, the operational impact on public water supply would be negligible. Requiring such a measure is disproportionate to the degree of impact and for these reasons is inconsistent with WAC 197-11- 660 and should not be included in the SCA.	Water Resources Energy and Natural Resources Public Services and Utilities	The FEIS will be updated to reflect the Applicant's updated ASC. This includes removing the City of Kennewick as the water supplier. According to the updated ASC, water would be sourced from an off-site utility such as an off-site public utility, private irrigator, or well. The water would be transported to site by truck for use during construction and operation. WAC 197-11-660 enables EFSEC apply mitigation for adverse impacts, it does not stipulate the impact must be significant.	4.4.3	Revise FEIS to include the Applicant's updated ASC information
Scout Clean Energy	1102200-19	Recommend removal of the analysis of indirect impacts and requirements for mitigation within a 0.5 buffer (Zone of Influence) around the Project boundary. Inclusion of analysis and mitigation for indirect habitat impacts results in a change in mitigation policy for Washington EFSEC projects and is infeasible to implement as written. For full explanation and rationale refer to **Response to Hab-5 in Attachment 1.**	Wildlife and Habitat	The potential for wind energy projects to result in disturbance effects to wildlife is borne out in the literature and acknowledged in the ASC. While the ASC noted the potential for indirect (sensory) disturbance to wildlife, there were gaps the assessment and mitigation of the impact. WAC 463-60-332 (2) requires that Projects address the potential indirect impacts on habitat and the species that occupy those habitats "… The application shall include a detailed discussion of temporary, permanent, direct and indirect impacts on habitat, species present and their use of the habitat during construction, operation and decommissioning of the energy facility. Impacts shall be quantified in terms of habitat acreage affected, and numbers of individuals affected, threatened or removed". The dEIS uses the term "zone of influence" to describe the potential indirect effects to wildlife, through sensory and other disturbance, that could occur due to the construction and operation of the Project. The application of 0.5 mile buffer was developed to estimate the potential indirect loss based on available literature cited in the dEIS. The literature cited in the dEIS to develop the ZOI was primarily collected from wind power facilities and used as a proxy to estimate the potential impact of the Project. The ZOI was applied to the habitat polygons provided in the ASC to estimate the potential indirect habitat loss of the Project, which is presented in Table 4.6-5 of the dEIS. This table was developed to be consistent with the level of information presented for direct loss and summarizes what type of habitats may occur within 0.5 miles of the micrositing corridor and other Project features. These values were created by clipping out direct loss to avoid double counting areas addressed by the Applicant's mitigation strategy. Mitigation measure Hab-5 was developed to respond to WAC 463-60-332 (3)(d) requirement that indicates that mitigation measures should "achieve equivalent or greater habitat quality, value and function for those habitats being impacted". Hab-5 recognizes that the 0.5 ZOI used to estimate potential indirect habitat loss and may not reflect the actual indirect impacts of the Project, once operational, by not linking additional mitigation or compensation with the 0.5 ZOI or values presented in Table 4.6-5. Hab-5 provides a framework for the Applicant to develop a method to quantify the Project specific indirect impact and develop measures to achieve the goal of equal or greater habitat quality and function. The mitigation measures does not specify the ratio of mitigation required for indirect habitat loss, rather requires the Applicant to work with WDFW and EFSEC to develop an Indirect Habitat Loss Management Plan that would describe how loss would be measured, what methods would be implemented to measure loss, and what additional mitigation would be required to account for that habitat loss. The Applicant, in consultation with WDFW and EFSEC, may propose that further mitigation for agricultural land is not require. The proposed methods should consider how survey results in the Lease Boundary can be extrapolated to evaluate the potential indirect habitat loss in adjacent natural habitat that is not accessible by the Application. The Plan would also describe how potential indirect impacts from other developments that could occur during the operation of the Project would be excluded.	4.6	n/a
Scout Clean Energy	1102200-20	Recommend removal of the Hab-1 Mitigation Measure from the DEIS. Regional wildlife corridor models are too coarse to be used for site-specific project siting and permitting and were not intended to be regulatory boundaries. For full explanation and rationale refer to **Response to Hab-1 in Attachment 1.**	Wildlife and Habitat	Project components are expected to overlap areas modelled by the Washington Wildlife Connectivity Working Group as habitat linkages. The WWCWG (2013) identifies the modelled linkage centrality corridors as a tool to inform where further disturbance should be avoided. Hab-1 will be updated to provide more specificity to the models referenced. There is ample literature that describes the potential impacts of linear construction (e.g. powerlines, roads) on wildlife. These are discussed in dEIS. The ASC provided a general project layout; however, it is understood that further changes may be made. Once the Applicant has identified their final design and understands what linear features may impact modelled corridors, Hab-1 provides a framework to develop reasonable mitigation to reduce impacts on wildlife that may use the corridor. This could include considering how power poles may change predator-prey relationships or roadways create barriers.	4.6	Update Hab-1
Scout Clean Energy	1102200-21	Recommend changing Hab-2 Mitigation Measure to read: *Transmission line crossings of canyons and draws would be minimized. Where crossings are required, the Applicant would provide EFSEC with rationale for the crossings and propose any appropriate additional mitigation measures warranted to reduce potential barriers to movement and wildlife collisions. The mitigation measure reduces potential Project related barriers to wildlife movement while allowing for continued monitoring and adaptive management of potential Project related barriers.*	Wildlife and Habitat	The addition of the word "appropriate" is not necessary as mitigation measures are required to be reasonable.	4.6	n/a
Scout Clean Energy	1102200-22	Recommended Hab-4 be removed and replaced with following text. For full explanation and rationale refer to **Response to Hab-4 in Attachment 1**. As a condition of permit approval, EFSEC will require a Technical Advisory Committee (TAC) be formed by the Certificate Holder to advise on the implementation of minimization and mitigation measures and monitoring studies during operations. The TAC will be established prior to commercial operations with representation from, but not limited to: WDFW, the Washington Department of Natural Resources (DNR), Yakama Nation and CTUIR resource experts, Benton County, the U.S. Fish and Wildlife Service (USFWS), landowner(s) and other local interest groups. The TAC will provide a neutral forum in which independent and informed parties can collaborate with the Certificate Holder, and make recommendations to the Certificate Holder and EFSEC, if the TAC deems additional studies or mitigation are warranted to address impacts that were either not foreseen in the Application or the Environmental Impact Statement (EIS), or exceed impacts that were projected (WDFW 2009, Section 3).	Wildlife and Habitat	EFSEC recommended mitigation measures provided in the dEIS include pre-construction surveys required to fill information gaps on species presence and potential Project impact derived from the current limitations in baseline information and understanding of final project design interaction with wildlife and habitat. The data from pre-construction surveys would be used to inform the requirement of mitigation plans for construction and operation as well as adaptive management. As such, the design of pre-construction studies should be developed in consultation with local experts. Hab-4 will be revised to require the establishment of a pre-construction advisory group instead of a Technical Advisory Group; although, it would likely be beneficial for the Applicant to include members of the TAC in the pre-construction advisory group.	4.6	Update Hab-4
Scout Clean Energy	1102200-23	Recomend removal of Mitigation Measure Hab-6. A final Project design will be submitted to EFSEC prior to construction. Provided the design adheres to all requirements outlined in the Final EIS and Site Certification Agreement issued for the Project, no additional approvals should be required. If the Project varies from the terms and conditions of the FEIS or SCA then approvals will be sought through the standard process with EFSEC. Also refer to **Response to Hab-4 in Attachment 1** regarding the role of the TAC.	Wildlife and Habitat	Hab-6 provides EFSEC the ability to work with the Applicant to understand how the final design has been developed to meet the Final EIS. There are information gaps remaining from the ASC that could affect the final design and management plans associated with implementation of the final design. Hab-6 will be updated to reference the PAG instead of the TAC.	4.6	Update Hab-6
Scout Clean Energy	1102200-24	Spec-1 through Spec-13 are species related measures with the aim of identifying and minimizing effects on species during Project-related activities. They all involve pre-construction surveys and then some determination of whether further data collection or mitigation is required. We recommend removing these measures and consolidating them into one measure that captures the intent of Spec-1 through Spec-13. This approach is a better match for how surveys will actually occur and allows for close coordination with WDFW and EFSEC to determine if any additional surveys or mitigation should be completed. The recommended new mitigation measure is located below in this comment. The scope of the response for the recommended species-specific mitigation measures do not correspond with the level of biological impact for many of the species discussed. For example, one observation of one blue heron during an avian use survey. The mitigation measure (SPEC-6) that requires the Applicant maintain a database of incidental observations does not result in mitigation measures that reduce mortality. Separate management plans for individual species and survey requirements should be consolidated into one general preconstruction clearance survey requirement for Threatened, Endangered and Sensitive Species (TESS) survey to adequately address avoidance and minimization measures during construction. Incidental observations to inform adaptive management measures provides a weak foundation to effectively modify Project measures that minimize impacts. Adaptive management should be based on data from rigorous post-construction biological surveys that collect systematic fatality data. None of the sensitive species listed in the DEIS are commonly found at operational wind facilities in the Columbia Plateau Ecoregion of Washington and Oregon. In an assessment of direct impacts to bird populations in the CPE, populations level effects to all sensitive species, except ferruginous hawk, from wind energy operation is unanticipated due to the relatively small number of fatalities documented and relatively large population sizes (Jansen 2023). Thus separate management plans beyond what is proposed through the Wildlife Incident Reporting and Handling and System (WIRHS), and other wildlife fatality monitoring programs is unnecessary. Therefore, in accordance with WAC 197-11-660 (a) and (b), the proposed mitigation measure is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. As discussed in response to HAB-4 and HAB-5 (see **Attachment 1**), the development and advisory role of the TAC is intended to occur during the operational phase of the Project and not during the construction phase. The purpose of the TAC is advisory in nature and meant to review post-construction monitoring data and make suggestions to the project owner and EFSEC regarding the need to adjust mitigation and monitoring requirements based on results of monitoring data and other relevant data (WDFW 2009). The TAC is not meant to serve as an arbiter that deems the adequacy of a construction design or serve as a surrogate for a permitting authority. RECOMMENDED NEW SPEC-14: The Certificate Holder will complete a pre-construction survey for species identified as special-status in the ASC. The survey will be completed during a time of year when species are most likely to be detected (likely spring/summer), during the survey year prior to construction start. If any special-status species are observed during the pre-construction survey the Certificate Holder will coordinate with WDFW and EFSEC to determine if any additional minimization measures should be implemented during construction and if any additional surveys or data collection should be completed and the timing of that work.	Wildlife and Habitat	There were information gaps in the ASC and subsequent information submissions regarding the presence of special status species and their habitat in the Project area. As such, characterizing the impact of the Project on special status species was based on GAP habitat mapping provided by the Applicant that suggested these species could occupy the Lease Boundary and adjacent habitat. Species specific mitigation measures have been provided in the dEIS to fill these information gaps and provide specificity regarding the type of mitigation measure to be considered in the event the species is detected. As noted by the Applicant in their comment, the level of mitigation in these measures have been scaled according to the anticipated likelihood of an impact (e.g. great blue heron). The WIRHS will provide observation of wildlife fatalities; however, collection of incidental observations of live wildlife can be used to track general wildlife trends over the duration of Project operation and provide information to be considered in adaptive management.	4.6	n/a
Scout Clean Energy	1102200-25	In accordance with WAC 197-11-660 (a) and (b), proposed mitigation measure Spec-1 is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. Recommend revising Mitigation Measure Spec-1 as follows: The Applicant would conduct pre-construction surveys for sensitive reptile species prior to alteration or destruction of suitable habitat such as areas within the Lease Boundary identified as core habitat in GAP mapping, as well as shrubland (e.g., shrub-steppe, rabbitbrush). These surveys will be conducted along with surveys for other special status species as described in mitigaton measure **Spec-14.** The results of pre-construction surveys would be shared with EFSEC and WDFW and any necessary setbacks or modifactions to the construction schedule to minimize impacts on species observed would be determined. ~~ould be contacted prior to undertaking these surveys.~~ ~~f these species are identified through pre-construction surveys, the Applicant would prepare a Reptile Management Plan to reduce potential impacts on habitat, mortality, and barriers to movement. The Reptile Management Plan would describe:~~ ~~•Hill ow the Applicant would avoid suitable habitat, including where the species were observed~~ ~~•Hill ow the Applicant would implement management recommendations in Larsen (1997)~~ ~~•Hill ow the Applicant would maintain rodent burrows in suitable reptile habitat (e.g., shrub-steppe)~~ ~~•Allidditional mitigation measures that would be implemented to reduce potential mortality of these species during the construction and operation stages of the Project~~ ~~The Reptile Management Plan would be reviewed by the TAC and approved by EFSEC prior to initiation of construction. Survey results and proposed adaptive management would be reviewed by the TAC prior to implementation (see Hab-4). The mitigation measure avoids and reduces potential striped whipsnake and sagebrush lizard habitat loss and mortality while allowing for adaptive management through Project construction and operation.~~	Wildlife and Habitat	Information provided in the ASC and subsequent information (e.g. GAP mapping) by the applicant indicate that suitable habitat for special status reptile species may be impacted by the Project. As such, Spec-1 is consistent with WAC 197-11-660 , which requires mitigation measures to be specific to adverse environmental impacts, such as loss of habitat and potential mortality. Spec-1 has been developed to provide clarity as to the type of mitigation that should be considered in the event a special status reptile is documented during pre-construction surveys. Spec-1 directs the Applicant to develop pre-construction survey methods with input from WDFW and does not provide direction on how the pre-construction surveys should be undertaken. As such, the Applicant and WDFW may discuss conducting the pre-construction surveys in tandem if appropriate. Spec-1 would be applicable while potential impacts to the species remain, which includes operation; however, allows for adaptive management as the type and extent of Project-related impacts changes.	4.6	n/a

Table 10-1B Horse Heaven Project Public Comments & Responses Tracking Table

Submission-1102200			Public Comment Responses			
Author	**Unique ID**	**Recommendation/Contribution**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Scout Clean Energy	1102200-26	In accordance with WAC 197-11-660 (a) and (b), proposed mitigation measure Spec-2 is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. Recommend removal of Mitigation Measure Spec-2. Applicant will record and report any observations of America white pelican during recommended pre-construction surveys described above in **Comment 24.**	Wildlife and Habitat	The ASC reported that American white pelican has been observed in the Lease Boundary and the Project could result in mortality. Maintaining databases of incidental observations provides some information on species presence in the Lease Boundary that can inform discussions regarding whether additional data may be required. The mitigation measures will be updated.	4.6	Update mitigation measures
Scout Clean Energy	1102200-27	Recommend Mitigation Measure Spec-4 is revised as follows (see Comment 24 for proposed modified condition Spec-14): ~~The Applicant would conduct burrowing owl surveys within areas of direct loss Applicant will record and report any observations of burrowing owl during recommended pre-construction surveys described in mitigation measure **Spec-14.**~~ ~~(permanent, temporary, and modified) and associated ZOIs. The results of these surveys would be provided to the TAC and EFSEC for review. and used to inform the final Project layout. Active burrows would be retained and satellite burrows with characteris tics used by burrowing owls would be avoided where feasible to maintain habitat capacity.~~ If active burrowing owl burrows are documented during pre-construction surveys the Applicant will coordinate with WDFW and EFSEC on any necessary buffers around active nests during construction. ~~Apply WDFW-~~ ~~recommended seasonal buffers (0.5 miles) (Larsen et al. 2004) for burrowing owl nests to avoid disturbing nesting burrowing owls, if present. Seasonal buffers (February 15 to September 25) would be applied during construction and for temporary disturban ces, such as periodic maintenance, during operation.~~ ~~If active burrowing owls are identified in the Lease Boundary, the Applicant would develop a species-specific management plan that describes:~~ ~~•Tillhe location of active burrows~~ ~~•Hill ow active burrows would be avoided through re-alignment or reconfiguration of Project features~~ ~~•Allldditional mitigation measures that would be applied where disturbance to active burrows is expected (e.g., construction of artificial burrows)~~ ~~•Olll ngoing monitoring of active burrows~~ ~~The Burrowing Owl Management Plan would be reviewed by the TAC and approved by EFSEC prior to initiation of construction. Survey results and proposed adaptive management would be reviewed by the TAC prior to implementation (see Hab-4).~~ ~~The Applicant would monitor access roads for burrowing owl use and mortalities. Mortalities would be reported to the TAC and EFSEC within 5 days of the observation. Incidental observations of burrowing owl use would be provided to the TAC on an annual basis.~~ The mitigation measure avoids and reduces potential loss of burrowing owl habitat, disturbance to burrowing owls, and burrowing owl mortality, while allowing for adaptive management through Project construction and operation.	Wildlife and Habitat	The mitigation measure has been developed to fill current information gaps on burrowing owl occupancy in the Lease Boundary and provide clarity to the type of mitigation measures that should be considered if active burrows are recorded during pre-construction surveys. The mitigation measures reference buffer areas recommended by WDFW (Larsen et al 2004) and referenced in the Applicant commitments.	4.6	n/a
Scout Clean Energy	1102200-28	Recommend changing Spec-5 Mitigation Measure to replace every occurrence where ferruginous hawk nests are mentioned with a new description as follows: "*…ferruginous hawk stick nests that have been occupied by a raptor species within the previous year's breeding season ~~nests documented in PHS data and in Horse Heaven Wind Farm, LLC (2021a)~~ .* PHS data contains nests first documented a century ago that no longer exist on the landscape. As written, the Project would be required to avoid these locations but this avoidance would have no material benefit to the species. Ferruginous hawk exhibit high nest fidelity, meaning breeding pairs may return to the same area to nest year after year; thus relying on the nesting status of the previous year is a useful indicator of what could occur the following year; however, this nesting pattern does not always transpire. For example, Nest 03 was occupied by a ferruginous hawk 2017–2019 but did not nest in 2022. The Applicant has committed to conduct raptor nest surveys annually at the Project for the first 5 years of operation and the results will be integrated into minimization measures through the adaptive management plan. The Applicant provided a revised Attachment L: Habitat Mitigation Plan to the ASC in December 2022 which includes more specificity about mitigation commitments regarding the location of mitigation lands, which are in alignment with the criteria included in Spec-5. The Applicant has also committed to implementing specific ferruginous hawk minimization measures and to installing nesting platforms in the ferruginous hawk core use area to improve nest productivity for the species. This was based on additional studies completed and submitted to EFSEC in December 2022, including the Ferruginous Hawk Population Viability Analysis, Ferruginous Hawk Resource Selection Function Analysis, and the Columbia Plateau Ecosystem Cumulative Impact Assessment on Birds, Bats, and Land Cover.	Wildlife and Habitat	As noted in the Applicant's comment, Ferruginous hawk show high nest site fidelity; however, may not continuously occupy the nest annually, as was demonstrated by the Applicant's data for Nest 03. As such, relying on one year's worth of nest data, such as the previous year's data would not accurately capture the nesting activity of a breeding pair or account for the potential for a nest to become occupied. Further, nest territories may remain unoccupied for several years (WDFW reports territories becoming active after 20 years of inactivity). WDFW has confirmed that periodic reviews of ferruginous hawk territories are conducted to remove territories that are not expected to support ferruginous hawk in the future due to substantial loss of habitat within core territory. Buffering nests reported in PHS data is intended to preserve the suitability of currently available habitat for nesting hawks and the capacity of nesting territories that have not been active recently. The Applicants new commitments identified in the revised Appendix L are intended to increase the availability of nesting habitat for ferruginous hawk by providing more nesting platforms. It is understood, from conversations with WDFW, that nesting habitat may not be limiting in the area and therefore additional nesting platforms may not be used. WDFW noted that artificial platforms have been successful in increasing nesting ferruginous hawks in areas, such as Alberta, where these features are limiting. However, the results of similar efforts in Washington State have not rendered high success as the availability of nesting substrate is not limited.	4.6	n/a
Scout Clean Energy	1102200-29	In accordance with WAC 197-11-660 (a) and (b), proposed mitigation measure Spec-6 is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. Recommend removal of Mitigation Measure Spec-6. Applicant will record and report any observations of great blue heron, sandhill crane, or tundra swan during recommended pre-construction surveys described above in **Comment 24.** Larson et al. (2004) states Sandhill crane areas should be avoided but does not describe what activities would be permissible nor temporal aspects to the avoidance. Should mitigation measure Spec-6 be retained in the SCA, recommend greater clarity for buffers be provided on this mitigation measure. Recommended redline changes as follows: ~~The Applicant would maintain a database of incidental observation of great blue heron, sandhill crane, and tundra swan foraging in the Lease Boundary during operation. Observational data and proposed adaptive management strategies would be reviewed with the TAC annually (see Hab-~~ ~~4). The Applicant would reduce the use of overhead power lines, where possible. If sandhill crane species are observed in the Lease Boundary, tThe Applicant would apply buffers recommended in Larsen et al (2004)(a) sandhill crane feeding areas (0.5 miles) and roosting areas (0.3 miles), if documented in the Lease Boundary. The mitigation measure avoids and reduces potential disturbance to and mortality of great blue heron, sandhill crane and tundra swan, while allowing for adaptive management through Pr oject construction and operation.~~	Wildlife and Habitat	It is unclear from the comment what the suggested changes to the mitigation measure are. Larsen et al (2004) references new construction and increases in traffic as activities to be avoided within 0.5 miles of foraging areas. It is expected that the Applicant would seek clarity from WDFW on the application of their guidelines if work is expected to occur within 0.5 miles of a foraging area.	4.6	n/a
Scout Clean Energy	1102200-30	In accordance with WAC 197-11-660 (a) and (b), proposed mitigation measure Spec-7 is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. Recommend removal of Mitigation Measure Spec-7. Applicant will record and report any observations of loggerhead shrike, sagebrush sparrow, sage thrasher, or Vaux's swift during recommended pre-construction surveys described above in **Comment 24.**	Wildlife and Habitat	The Project has potential to impact loggerhead shrike, sagebrush sparrow, sage thrasher, and Vaux's swift habitat and individuals (e.g. mortality). The mitigation measure has been included to reduce the potential impacts to these species.	4.6	n/a
Scout Clean Energy	1102200-31	In accordance with WAC 197-11-660 (a) and (b), the proposed mitigation measure Spec-8 is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. If mitigation measure Spec-8 is retained in the SCA, recommend the following replacement language for Mitigation Measure Spec-8 (see **Comment 24** for proposed modified condition Spec-14): Applicant will record and report any observations of prairie falcon during recommended pre-construction surveys described in Spec-14. If nesting prairie falcons are observed before or during construction the Applicant will coordinate with EFSEC and WDFW to determine appropriate buffers from construction activity to minimize disturbance while the nest is active.	Wildlife and Habitat	The proposed language does not provide specificity to the type of surveys that would be conducted for Prairie falcon (e.g. nest surveys) or clarify mitigation measures that would be applied in the event an active nest is located. Spec-8 is based on WDFW recommended buffers presented in Larson et al (2004), which was referenced in the ASC.	4.6	n/a
Scout Clean Energy	1102200-32	Recommend removal of Mitigation Measure Spec-10. Recommend reduction of impact magnitude from Medium to Low for Operations of Turbine Options and removal of mitigation measure. In accordance with WAC 197-11-660 (a) and (b), the proposed mitigation measure is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. Applicant will record and report any observations of jackrabbit during recommended pre-construction surveys described in **Comment 24.**	Wildlife and Habitat	The mitigation measure has been proposed to address information gaps in the ASC regarding jackrabbit presence and habitat use. Data provided by the Applicant included GAP predictive mapping that suggests the Lease Boundary provides habitat for the species. Table 4.6-2 outlines the criteria used to describe magnitude ratings. A magnitude of Medium is described as "The incremental change is expected to result in a clearly defined change that could result in changes to the population over shorter and longer periods of time; however, it remains below a level of impact that could exceed the resiliency and adaptability limits of the population." Based on the information provided to EFSEC at the time of drafting the dEIS the Project could result in a loss of jackrabbit habitat availability that may result in changes to the population. However, it is expected that loss of habitat other impacts associated with the Project on jackrabbit would be within the adaptability of the population.	4.6	n/a
Scout Clean Energy	1102200-33	Recommend modifying Mitigation Measure Spec-12 as follows: *~~The Applicant would conduct surveys for Townsend's ground squirrel colonies in areas of the Project disturbance footprint (including ZOI) to inform final design.~~* *~~The Applicant would Applicant will record and report any observations of Townsend's ground squirrel during recommended pre-construction surveys described in Comment 25. If the species is detected during pre-construction surveys the Applicant will consider how to avoid minimize habitat loss in occupied colonies during construction within Townsend's ground squirrel habitat concentration areas, as well as known colonies detected during pre-construction surveys in final design. Additional Townsend's ground squirrel colonies identified through surveys would be shown on Project mapping and a species-specific management plan would be developed for areas where avoidance is not feasible. This plan would provide rationale for why colonies cannot be avoided and would provide additional mitigation measures, such as colony relocation and reconstruction of habitat features. The plans would be provided and discussed with the TAC, and approved by EFSEC, if avoidance of identified ground squirrel colonies is not feasible.~~* *Observational data and adaptive management strategies would be reviewed with the TAC annually during operations . The mitigation measure reduces potential loss of Townsend's ground squirrel habitat, disturbance of squirrel colonies, and Townsend's ground squirrel mortality, while allowing for adaptive management through Project construction and operation.* The recommended measure to conduct ground squirrel surveys outside the Project lease boundary is beyond the control of the Applicant and is biologically unnecessary. Townsend's ground squirrel colonies are commonly found along roads, transportation rights-of-way, and other human development, thus indirect impacts to squirrel colonies outside the Project Boundary (particularly 0.5 miles away from disturbance) is not expected. Compensatory habitat mitigation for loss of habitat accounts for the loss of function and value to species that use the habitat, thus additional habitat mitigation for impacts to ground squirrels would duplicate the amount of mitigation the Project has already committed to. Precedent for how squirrel colonies are addressed during development can be referenced in the Goose Prairie Solar Project, permitted by EFSEC. No adjustments were made to final Project designs based on the presence of Townsend's ground squirrel colonies. Therefore, in accordance with WAC 197-11-660 (a) and (b), the proposed mitigation measure is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. Finally, the TAC is an advisory council that serves during the post-construction phase of the Project and per the Wind Power Guidelines its purview does not include Project design or construction elements.	Wildlife and Habitat	The revised language would not adequately survey for Townsend's ground squirrel colony in order to apply further mitigation to retain habitat required to support this species. Further, this species is an important prey item for Ferruginous hawk, which is known to occur in the Lease Boundary. The mitigation measure is not intended to require the Applicant to conduct surveys in private lands beyond their control. As such, additional clarifying language will be added to the measure.	4.6	Update mitigation measure.
Scout Clean Energy	1102200-34	In accordance with WAC 197-11-660 (a) and (b), the proposed mitigation measure is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. Recommend the following replacement language for Mitigation Measure Spec-13: The Applicant will negotiate access agreements for priority areas for the Yakama Nation and WDFW when needed to conduct desired pronghorn antelope surveys. Fencing around utility scale solar facilities is a US Fire and Electrical Code requirement. Pronghorn are a non-listed, introduced, and unregulated species that have limited use in the Horse Heaven Hills based on WDFW survey data. Once the Project is constructed, there are no feasible adaptive management strategies that would increase or decrease pronghorn use in the area.	Wildlife and Habitat	Pronghorn antelope were included in the dEIS due to their importance to the Yakama Nation, who have collaborated with WDFW to re-introduce the species to the region. While their presence in the Project Lease Boundary may be currently be occasional, their range may expand through the duration of Project Operation resulting in increased interactions between Project operation and this species. An example of adaptive management that could be implemented during operation may be a review of Project road use and speeds due to increased pronghorn presence (overall or seasonally). Spec-13 does not exclude the use of fencing around the solar facilities, rather requires the Applicant to consider methods, if any, to reduce the extent of fencing within the Project Lease Boundary.	4.6	n/a

Table 10-1B Horse Heaven Project Public Comments & Responses Tracking Table

Submission-1102200			Public Comment Responses			
Author	**Unique ID**	**Recommendation/Contribution**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Scout Clean Energy	1102200-35	Recommend changing Wild-1 Mitigation action to read as follows: "Upon completion of the two-year bird and bat post-construction fatality monitoring program, the Applicant would review the results with ~~EFSEC and WDFW the TAC and determine whether additional monitoring and mitigation measures are necessary. This mitigation measure allows for continued monitoring and adaptive management~~ of potential Project related wildlife mortalities."	Wildlife and Habitat	The edited changes are unclear. The purpose of reviewing results with EFSEC, WDFW, and the TAC is to allow for adaptive management, if the results of the post-construction fatality monitoring program are not consistent with the impacts predicted in the ASC and FEIS.	4.6	n/a
Scout Clean Energy	1102200-36	Recommend revising Wild-5 Mitigation action to read as follows: "The Applicant would limit construction disturbance by identifying sensitive areas on maps and flagging any sensitive areas including wildlife features, such as wildlife colonies, active nests, dens, and wetlands in the field, but will be limited in circumstances to be allowed when the Applicant's biologist determines it not to be deterimental to the resource. The Applicant would conduct ongoing environmental monitoring during construction to ensure that flagged areas are avoided. This mitigation measure reduces potential loss of habitat and wildlife mortality."	Wildlife and Habitat	The mitigation measure will be updated to include: Encroachment into sensitive areas required during construction would be reviewed by the Applicant's biologist to determine the impact and recommend additional measures to required to manage impacts to the resource. The Applicant would provide information on where encroachment was required, rationale for encroachment, and additional mitigation measures implemented to EFSEC for review	4.6	Update mitigation measure
Scout Clean Energy	1102200-37	Remove Wild-6 mitigation as it is redundant to the Applicant's mitigation as addressed on Page 4-190 "Personnel would be instructed to use the Applicant's incidental reporting process to document bird or bat casualties during construction of the Project." as well as in the Bird and Bat Conservation Strategy Section 7.2.1 Compliance and Reporting resource protection measures, including: 2) the importance of these resources and the purpose and necessity of protecting the resources, and ensuring this information is disseminated to applicable contractor personnel, including the correct reporting procedures. It also states that personnel will be instructed to use the HHWF incidental reporting process to document bird or bat casualties during construction at the Project.	Wildlife and Habitat	The Applicant's commitments are specific to bird and bat fatalities and does not include documentation of other mortalities that could occur during construction and operation (e.g. road collisions). Wild-6 is intended to fill this gap.	4.6	n/a
Scout Clean Energy	1102200-38	Mitigation measure ENR-6 would require removal of wind turbine foundations below 3 feet bgs. Removal down to 3 ft bgs is standard practice for wind energy projects because that depth is adequate to avoid equipment strike from typical farming practice. Removal below this depth does not provide significant environmental benefit and is inconsistent with precedent (see e.g. Wild Horse SCA). The applicant has conferred with landowners and agreed to lease terms that require removal of foundations down to 3 ft bgs. Request the mitigation be modified to conform to standard practice as follows: To retrieve as much of the natural resources used in construction and operation of the Project as possible, the Applicant would demolish or remove all above ground level Project-related equipment and facilities from the Lease Boundary, and concrete foundations within 3 feet of the ground surface. If the Applicant intends to leave any other portion of the facility, ~~including concrete foundations, they must submit a request to EFSEC in an update to their decommissioning plan.~~	Energy and Natural Resources	Comment acknowledged, but no changes will be made to ENR-6 in the FEIS.	4.7	n/a
Scout Clean Energy	1102200-39	Recommend that mitigation measure ENR-7 be revised similar to the Montague Wind condition described below to avoid ambiguity, with additional details to be provided in the decommissioning plan as it is developed consistent with timing in the SCA. The applicant is committed to recycling materials that can reasonably be recycled, such as metals, paper, glass, and recyclable plastic components. Used oils would be recycled. Appendix A to the ASC, Preliminary Decommissioning Plan, identifies additional recycling measures for solar module components, electrical wire, racking and fencing material, etc. However, mitigation measure ENR-7 as written is vague and risks requiring recycling of materials that could have theoretical potential for re-use but in practical terms no cost-effective process or plants have yet been developed. For example, some specialized project components such as lithium currently have very immature recycling markets. The Washington legislature is currently considering legislation that would support recycling such that wind turbine blades and solar panels would have markets available to allow recycling of these materials. We are hopeful that these markets will be developed by the time the project is decommissioned but request that if EFSEC opts to include this mitigation measure as a requirement in the SCA, that the measure be worded more carefully to make the requirement clear and tied to practical measures. In addition, please note that a search of previous SCAs in Washington did not identify recycling requirements for any projects but instead required development of a decommissioning plan to be approved by EFSEC. Site Certificates issued by Oregon EFSC identify recycling requirements in general but defer the details to a decommissioning plan. An example is Montague Wind, which includes the following requirement for both the construction and operations phases: **(112)** The certificate holder shall implement a waste management plan during facility operation that includes but is not limited to the following measures: (a) Training employees to minimize and recycle solid waste. (b) Recycling paper products, metals, glass and plastics. (c) Recycling used oil and hydraulic fluid. (d) Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler. (e) Segregating all hazardous, non-recyclable wastes such as used oil, oily rags and oil-absorbent materials, and mercury-containing lights for disposal by a licensed firm specializing in the proper recycling or disposal of hazardous wastes.	Energy and Natural Resources	Comment acknowledged, but no changes will be made to ENR-7 in the FEIS.	4.7	n/a
Scout Clean Energy	1102200-40	Recommend revision of the draft EIS definitions in Section 4.8.2 of permanent vs temporary disturbance to be consistent with precedent for calculating impacts for solar facilities. The draft EIS includes all of the acres of temporary habitat alteration (e.g., vegetated areas under solar arrays) as "permanent" impacts, which result in inflated assessments of Project impacts in multiple sections of the draft EIS. The total acreage of agricultural lands that would meet the definition of a permanent (impermeable) impact is low – only about 489 acres. The remainder of the agricultural lands would have either temporary impacts or have habitat modification to grassland. As approved by WDFW for other projects in Washington, modified habitat within the solar facility does not warrant the same mitigation ratio as impermeable surfaces. All lands that are temporarily taken out of agricultural production would be returned to agricultural production at the end of the Project.	Land and Shoreline Use	Comment acknowledged, but to keep the analysis of Agricultural lands in the ASC and EIS aligned and avoid confusion no changes will be made to section 4.8 in the FEIS in this regard	4.8	n/a
Scout Clean Energy	1102200-41	Recommend deletion of Mitigation Measures LSU-1, 2, & 3; Mitigation to limit conflicts between the Project and Lessors is considered overreach and unnecessary, as Project leases require such coordination over the term of the lease. State intervention and oversight in this arena is an unwarranted cost imposed on the certificate holder. The impacts associated with construction and decommissioning are short-term in nature and any damages are compensible. Recommend modifying Table ES-3a associated with Section 4.8 "Magnitude of Impact" from "Medium (operational changes)" to "Low".	Land and Shoreline Use	Comment acknowledged, but no changes will be made to LSU-1, 2, & 3 in the FEIS.	4.8	n/a
Scout Clean Energy	1102200-42	On page 4-278, recommend revising the magnitude of impact rating scale as follows: Magnitude – Would the impact result in a direct or indirect alteration to the characteristics that would qualify the resource for inclusion in the NRHP in a manner that would diminish the resource's integrity, or, for precontact resources, does the impact result in a direct or indirect alteration to the resource itself or the surrounding environment? What is the resource sensitivity? Are Project-related impacts on historic and cultural resources negligible, low, medium, or high in terms of their severity? Resource sensitivity: Impacted resources are fully evaluated and not eligible for NRHP listing or are eligible but the impact will not result in an alteration to the characteristics that qualify the resource for inclusion in the NRHP in a manner that would diminish the resource's integrity. Additionally, applying an automatic rating of a high magnitude of impact to all NRHP-eligible resources, just because they are eligible, does not consider the fact that a resource will be impacted by the Project, but that impact is not on a characteristic of the resource that qualifies it for listing in the NRHP. For example, for some resources, the environmental setting is not a characteristic that qualifies them for the NRHP, so a change to the setting should not be rated as high; instead, it should be rated as negligible. This is the case with BPA transmission line 721666; the viewshed and environmental setting of this resource not a characteristic that qualifies it for inclusion in the NRHP, so a change to the viewshed is not a high impact. The remaining historic-period architectural resource—an electricity transmission line, resource 721666 (detailed in Section 3.9)—is eligible for listing under the NRHP. The Project will impact the environmental setting of this resource via some local, short term, unavoidable impacts through alteration of the viewshed (with no physical impacts to the transmission line resource itself). However, the setting is not an important aspect of the resource's integrity, and a change to the setting does not result in a loss of its integrity (i.e., its ability to covey its NRHP significance), so the impact on the resource would be negligible in magnitude.	Historic and Cultural Resources	The recommended revisions to the Magnitude attribute will be reviewed. Discussion of the intergrity of unevaluated or eligible cultural resources may be warranted. In addition, alteration(s) to precontact resources and the surrounding environment may be an important factor to consider in assessing magnitude of impacts. The recommended revision to resource sensitivity will be reviewed. Please note that the DEIS states that, "Resource sensitivity has been considered even when the intent of the Applicant's APP is to avoid the identified resource." Magnitude ratings for Project impacts to eligible cultural resources will be reviewed. Attention will be given to the characteristics that qualify such resources for inclusion in the NRHP. Project impacts to the intergrity of eligible resources will also be reviewed.	4.9	Review recommended revisions to Magnitude attribute and resource sensitivity. Determine whether resource sensitivity should be evaluated separately from Project impacts. Review magnitude ratings for Project impacts to eligible cultural resources.
Scout Clean Energy	1102200-43	Additional cultural resource investigations were completed in Fall 2022. These investigations demonstrated that resources 45BN2086, 45BN2088, 45BN2093, 45BN2157, and 45BN2158 are not eligible for listing on the NRHP and therefore do not require protection. This report will be provided to EFSEC as soon as reviews have been completed by tribal representatives and DAHP. Accordingly, the Final EIS should reflect updated information on eligibility and protection.	Historic and Cultural Resources	The FEIS will include all updated information on eligibility and impacts to resources 45BN2086, 45BN2088, 45BN2093, 45BN2157, and 45BN2158.	3.9.2; 3.9.7; 4.9.2; 4.9.3	Update FEIS once all relevant information becomes available.
Scout Clean Energy	1102200-44	Table 4.9-3 states "Unevaluated or Not Eligible Precontact Isolates and Sites". Recommend deletion of "Unevaluated or Not Eligible" as precontact resources are not evaluated for the NRHP for this Project but are subject to state law.	Historic and Cultural Resources	Table 4.9-3 will be revised.	4.9.2.1	Revise Table 4.9-3 as recommended.
Scout Clean Energy	1102200-45	Table 4.9-4 states "Not Eligible Precontact Isolate". Recommend deletion of "Not Eligible" as precontact resources are not evaluated for the NRHP for this Project but are subject to state law.	Historic and Cultural Resources	Table 4.9-4 will be revised.	4.9.2.1	Revise Table 4.9-3 as recommended.
Scout Clean Energy	1102200-46	Recommend changing SF-1 Mitigation Measure by replacing "nearby" with "non-participating" with respect to residences. Because the Applicant is addressing shadow flicker concerns directly through agreements with participating residences, this mitigation measure should only apply to non-participating residences. In addition, the following statement should be deleted; "As a last resort, the control system of the wind turbine could be programmed to stop the blades during brief periods when conditions result in a perceptible shadow flicker.", as it merely states the capability of software features and not required mitigation. In accordance with WAC 197-11-660, we request this change as it is not related to specific adverse environmental impacts, nor is it tied to policies, plans, rules, or regulations formally designated by an agency.	Visual Aspects, Light and Glare	Reccomendaitons acknowledged. Will revise SF-1 to refect added context.	4.10.2.4	SF-1a: Replace "nearby" with "non-participating". SF-1b: Delete setnece as reccomended, revise previous sentence thustly: "Shadow flicker can usually be addressed by planting trees, shading windows, operational programming, or other mitigation measures."
Scout Clean Energy	1102200-47	Recommend the revision of SF-2 Mitigation Measure to refer to Mitigation Measure N-4 as they are duplicates and will be a common contact methodology.	Visual Aspects, Light and Glare	Acknowledged that the reccomended complaint reselotuion mititgaiton measures should refence the same common contact methodology	4.10.2.4	Revisions will cross over multipbel FEIS sections.
Scout Clean Energy	1102200-48	Recommend changing Vis-1 Mitigation Measure to read; Relocate wind turbines ~~located within the foreground distance zone (0 to 0.5 miles)to be at least four times the maximum blade tip height of the wind turbine rotor from nonparticipating residences to avoid completely dominating views from these highly sensitive viewing locations. Siting the wind turbines this farurther away would reduce the level of visual contrast and prominence (CESA 2011; BLM 2013).~~ The draft EIS cites BLM 2013 guidance and CESA 2011 guidance for this recommended measure, but without noting the specific grounds. The report does not prescribe distance zones to be used to drive wind turbine placement or mitigate visual impacts. It actually states the opposite: *These distance zones are for use in conducting VRIs only. While distance is an important factor in the perception of visual contrast in the landscape (see Section 2.2.4), BLM distance zones are not used in visual contrast or impact analyses, or to identify appropriate mitigation (BLM Document pg 9)* . While wind turbines viewed within 0.5 mi from a non-participant residence would be in the foreground, EFSEC has previously established a precedent for setbacks for wind turbines of 4 x the MBTH (Kittitas Valley Wind, et al), which is an objective standard that provides a more nuanced approach to reducing impacts tailored to wind turbine size. The CESA document contains the following: *In closer proximity, turbines will appear larger, more prominent, and seen more clearly with more visible detail. The concepts of foreground, middleground, and background are often used to describe our visual experience of the landscape from different distances. Due to the size and high visibility of wind turbines, the distance zones historically used in visual analysis may need to be reconsidered. Certainly views of wind projects in middleground to background areas are an important consideration.* *Turbines viewed at distances of less than ½ mile (foreground) are likely to have the greatest impacts, and viewers will recognize a higher level of detail. At this distance, turbines appear as part of one's immediate surroundings. They may also be audible in certain conditions within this distance.*	Visual Aspects, Light and Glare	Based on the taller turbines proposed for this Project , as well as the final result of the turbine setback requirements identified in the amended 2009 Site Certification Agreement for the Kittitas Valley Wind Power Project, it was found that the 4x the turbine height was insufficient to reduce impacts on non-participating residences. "For each turbine located within 2,500 feet of a non-participating landowner's existing residence, micro-siting determinations shall give highest priority to increasing the distance of the turbine from that non-participating landowner's residence, even beyond the minimum four times height setback described above, so as to further mitigate and minimize any visual impacts on that non-participating landowner". This is consistent with the project's assessment of visual contrast which determined the Project would completely dominate views within 0.5 mile of the proposed turbines while, from many KOP locations, continuing to dominate views up to 5 miles away.The distance zones referenced in the DEIS correspond to project analysis and not the BLM Visual Resource Inventory Distance Zones. No changes to this mitigation measure have been made.	4.1	n/a
Scout Clean Energy	1102200-49	Mitigation Measure Vis-4 is impractical and unnecessary, and should be eliminated. In accordance with WAC 197-11-660 (a) and (b), the proposed mitigation measure is not based on policies, plans, rules, or regulations, and is not related to specific adverse environmental impacts, and therefore it should not be included as a condition to the SCA. The BLM reference document (BLM 2013, Chapter 4) is not directly applicable to non-BLM land, but is simply a reference to be utilized where it may add value. Color-treatment primarily applies to solar thermal designs, not applicable to PV solar as panels cannot be treated. HHCEC will utilize bi-facial PV module design. *Per BLM 2013; Photovoltaic (PV) projects generally have lower visual impacts than the other technologies because of the low profile of the collector arrays and the lower reflectivity of the PV panels compared to the highly reflective mirrors used by the other technologies.* While color treating large tanks or storage buildings or other structures can be very effective visual mitigation per BLM's guidance, color treating photovoltaic panels is not feasible as it would interfere with energy conversion. Applying color treatments to support structures (stringer posts) would not be effective, because the posts are of small dimension and not highly visible because they are hidden by the panels. The visual simulations illustrate how the dark glass panels are the primary visual element of the solar field.	Visual Aspects, Light and Glare	This mitigation measure will be removed based on technological limitations of applying a color treatment to the solar panels, the primary generator of visual impacts. Installation of opaque fencing (VIS-6) would reduce impacts where level views of the arrays would occur, such as from KOP 12 (as simulated), reducing visibility of the PV support structures. Based on application of VIS-6, color treating the PV support structures would not be required.	4.1	Mitigation measure VIS-4 will be removed.
Scout Clean Energy	1102200-50	Condition Vis-6; No non-participating residences are located adjacent to the solar arrays. The term 'viewpoint' is vague in this context; Key Observation Points were identified in the ASC to depict how the project would appear from various locations, but identification of a KOP for purposes of this analysis does not constitute identification of a viewpoint that requires protection. In addition, opaque fencing would create new adverse impacts to wildlife that we are trying to avoid by implementation of other measures such as raising fence off the ground. Opaque fencing would not alter visibility of panels from higher elevation KOPs such as Badger Mountain or Viewpoint 3. The applicant requests that if EFSEC opts to retain this mitigation measure as a condition to the SCA, that it be rephrased to require that only non-participating residences within 500 feet of a solar array be screened.	Visual Aspects, Light and Glare	Text has been revised to state "KOPs (including the alignment of I-82)" instead of viewpoint as suggested. The purpose of this mitigation is to reduce impacts on highly sensitive viewing areas (including residences as many were not specifically analyzed by a KOP location) where the Project would dominate views. Reducing impacts on views from residences considers both participating and non-participating properties as impacts on these properties (and their viewers) would occur whether they have signed a project agreement. Correct, this mitigation measure would not reduce impacts on views from more distant KOPs but that is not why this mitigation measure has been proposed, instead it would reduce impacts on viewers located in proximity to the Project. To clarify application of this mitigation measure, if any residence or KOP location is within 0.5 mile of a proposed solar array, installation of opaque fencing would be installed on the side toward those viewers.	4.10.2.4	Changing "viewpoint" to "KOP (including the alignment of I-82)" to better match language used in section and identify a 0.5 mile buffer for its application.

Table 10-1B Horse Heaven Project Public Comments & Responses Tracking Table

Submission-1102200			Public Comment Responses			
Author	**Unique ID**	**Recommendation/Contribution**	**Subject (choose from drop-down)**	**Comment Response**	**Section Number in DEIS**	**Revisions to be reflected in FEIS (if applicable)**
Scout Clean Energy	1102200-51	Recommend that the finding of unavoidable significant adverse impact in Section 4.10.2.5 is not warranted and should be de-escalated. The applicant acknowledges there would be a high degree of visual change from specific viewpoints, including residences and public areas where numerous wind turbines would be seen skylined across the ridgeline. However, the landscape from which the wind turbines could be seen is not protected, designated, or managed for scenic quality. No designated local, state or federal vistas or viewsheds have been identified. The surrounding landscape is of a highly modified, developed agrarian to suburban visual character, as exemplified by the presence of single family housing developments on many of the ridges within the Project vicinity. Following the CESA methodology for visual impacts used for preparation of the DEIS, the first criteria to determine the magnitude of visual impacts is "*does the project violate a clear written standard intended to protect the scenic values or aesthetics of the area or particular scenic resource* ." The Project does not "violate a clear written standard intended to protect the scenic values or aesthetics of the area or particular scenic resource" because no such written standard or resource is documented. Because the Project is proposed outside of and away from lands designated or protected for scenic quality, it is reasonable to assume that views within Project's setting will change over time. Lacking unmitigable adverse impacts to designated or documented protected sensitive views, it is recommended that the finding of unavoidable significant adverse impact is not warranted and should be de-escalated.	Visual Aspects, Light and Glare	The Benton County Comprehensive Plan identifies conservation of visually prominent, naturally vegetated steep slopes and elevated ridges that define the Columbia Basin landscape. In particular, Policy 3 under Public Land Designation Goal 3 specifically identifies the Horse Heaven Hills as one of these landscapes. While these lands have not yet been placed into Open Space Conservation or other types of conservation, concern and preservation of the area's landscape character has been identified. The CESA methods build on the standard for visual resources in Washington Administrative Code 463-60-362(3) which does not relate significance to whether the landscape is protected, instead signficance is based on impacts to the area's aesthetics and alteration of the surrounding terrain. Based on the current design of the project, including turbines along the Horse Heaven Hills ridgeline, the Project would dominate views from highly sensitive viewing areas and modify landscape character within the region. No change in the finding of unavoidable, signficiant adverse impacts on visual aspects.	4.10.2.5	n/a
Scout Clean Energy	1102200-52	Page 4-411: Delete sentence *"The maximum modeled noise level at the one NSR with an in-pursuit status was 49 dBA at NSR 211. The maximum modeled noise level at the one NSR with an in-pursuit status was 49 dBA at NSR 211."* , since this landowner is not in-pursuit. Also delete the line item for NSR ID 211 in Table 4.11-8.	Noise and Vibration	Is this NSR now considered a participant? If not, then it should remain as it's greater than NSR 34.	4.11.2.2	TBD
Scout Clean Energy	1102200-53	Recommend revision of N-3 as follows: Monitor noise during nighttime operations (between 10 p.m. and 7 a.m.). ~~when operations have the potential to impact NSRs of wind turbines that required noise reduction features or reduced operations to ensure that operationsal noise does not exceed state noise limits. This monitoring shall capture at least 72 hours of ful l power operation.~~	Noise and Vibration	N-3 is mitigation measure for construction not operations, see reccomdened revision for the FEIS	4.11.2.4	Recommended revision of N-3: Monitor noise during nighttime construction operations (between 10 p.m. and 7 a.m.), when construction activities have the potential to impact neighboring NSRs or reduced operations to ensure that construction noise does not exceed state noise limits. This monitoring shall capture the entirety of the nighttime hours, or until construction activities cease.
Scout Clean Energy	1102200-54	The Applicant has proposed a complaint resolution procedure as identified in Section 4.1.1.3 of Updated ASC, "Utilize a complaint resolution procedure to address any noise complaints received from residents." The Applicant proposes revisions to Mitigation Action N-4 redlined as follows: N-4: Update the Applicant's ~~noise complaint resolution procedure to better address and respond to noise complaints from the public. These updates should include the following: a complaint hotline during construction and provide a phone number to be posted on signage throughout t he construction project and assure current site contact information is maintained with the EFSEC. The applicant would log all correspondence and promptly follow up with inquiries to provide appropriate resolution. The correspondence and resolutions will b e logged throughout the construction process, and log will be made available to EFSEC during routine reporting or upon request. During the operations phase the site will be staffed and contact information will be available available.1) Set up a 24-hour "noise hot line" or other form of communication that the public can use to report any undesirable noise conditions associated with the construction of the Project, with the ability to log the date and time of a complaint. This line of communication woul d be maintained through the end of construction; 2) Make an attempt to contact the complainant within 24 hours; 3) Require that any complaints and their resolution be reported to EFSEC during monthly reports to the Council.~~	Noise and Vibration	Acknowledged.	4.11.4	Revisisoins to be incorperated into the FEIS.
Scout Clean Energy	1102200-55	Recommend the deletion of N-6 Mitigation Measure. The Safety Manual described in ASC Section 4.1.2.5 would include contact information in case of safety issues or complaints about the Project. Complaints can be tracked through this process and responded to during normal working hours in a timely manner. Response during non-working hours to issues not related to safety is not justified and is not in accordance with WAC 197-11-660 (b) and (c) because the severity of the impact does not warrant providing extra staff to respond to complaints overnight.	Noise and Vibration	If the Emergency Plans outlined insection 4.1.2.5 have reporting instructions similar to what N-3 and N-6 have outlined, then those plans should be noted and detailed as an existing mitigation commitment.	4.11.2.4	Revisisoins to be incorperated into the FEIS.
Scout Clean Energy	1102200-56	The impact assessment for recreational impacts to use of DNR lands (Table 4.12-6) is overstated. DNR lands are currently under agricultural lease and are not used for recreation; therefore, conversion of DNR lands at the Sellards Road solar area to use for solar panels is not a high impact during any phase of the Project. Similarly, public roads in the Project vicinity are not often used by bicyclists; more heavily traveled bicycle trails are located along the Columbia River. Use of roads during construction for transport of equipment, materials, and workers would not significantly alter bicyclists' recreational opportunities in the Project vicinity. The actual impact on recreational opportunities resulting from Project construction, operation, and decommissioning would be negligible. Mitigation measure R-1 is disproportionate to the actual impacts on recreational opportunities resulting from construction of the project. Should EFSEC desire to retain a condition of approval relating to support for recreational opportunities, any measure requiring contribution to local recreational opportunities should be specific and measurable, such as the following: To mitigate the loss of recreational activities due to the Project, the Certificate Holder would coordinate with DNR and Benton County to identify new or participate in community planned recreational activities and/or improve existing recreational activities within the Lease Boundary and/or in surrounding communities (e.g., multi-use trails). The cost of the mitigation shall not exceed $50,000 in fees and construction and be be planned for completion within 5 (five) years of construction.	Recreation	Impacts to recreation involving cycling would not be negligible. The cycling path known as the Clodfelter Road Loop or the Horse Heaven Hills loop follows Clodfelter Road onto Plymouth, Sellards and through Webber Canyon and onto Budger Road and is a loop suggested by the Tri-City Bicycle Club. The Columbia Center Mall to Benton City loop is also suggested by the Tri-City Bicycle Club and includes a portions of Badger Road and Webber Canyon Road as part of the loop. EFSEC will not pose a minimum or maximum cost or fee structure for imposed mitigation.	4.12	n/a
Scout Clean Energy	1102200-57	In order to make Mitigation Measure R-2 more clearly defined, should the Council decide to impose an approval condition on this topic, the applicant recommends the language be rephrased as follows: *To mitigate the loss of uninterrupted views of scenic viewpoints, the Certificate Holder would provide a minimum of five informational boards approved by DNR and EFSEC at viewpoints within the Lease Boundary and/or in the surrounding communities associated with scenic areas of interest. The cost of the mitigation shall not exceed $25,000 in fees and construction cost and be be planned for completion within 5 (five) years of construction completion.*	Recreation	EFSEC will not pose a minimum or maximum cost or fee structure for imposed mitigation. Text will be updated to reflect approval by EFSEC and the five-year timeline of construction.	4.12	To mitigate the loss of uninterrupted views of scenic viewpoints. The Certificate Holder would provide a minimum of five informational boards approved by DNR and EFSEC at viewpoints within the Lease Boundary and/or in the surrounding communities associated with scenic areas of interest. The construction of the informational boards would be planned for completion within 5 (five) years of construction completion.
Scout Clean Energy	1102200-58	Mitigation measure R-3 is disproportionate to the actual impacts on recreational opportunities resulting from construction of the project. Impacts to bicycling would be limited and temporary. No mitigation for impacts to bicycling is warranted because there will be no significant loss of recreational opportunities. Should EFSEC desire to retain a condition of approval relating to support for recreational opportunities, it should be noted that the measure as phrased is not well defined. In order to make the mitigation measure more clearly defined, the applicant recommends the language be rephrased as follows: *...This plan should identify potential hazards within the Project Area (e.g., construction on or near common bicycle paths, no fly zones, etc.) and provide opportunities within the Lease Boundary and/or in the surrounding communities to identify or improve other similar recreation use areas to offset any recreation removed from the Project area as a result of the Project. The cost of the mitigation shall not exceed $15,000 in fees and construction cost and be be planned for completion within 5 (five) years of construction completion.*	Recreation	EFSEC will not pose a minimum or maximum cost or fee structure for imposed mitigation. Referenced plans are required to be completed prior to construction.	4.12.2.6	Text will be updated to reflect approval by EFSEC. "... to develop and maintain an adaptive safety management plan, prior to construction and as approved by EFSEC, to continue access to recreation activities in the Project area while keeping recreation enthusiasts safe."
Scout Clean Energy	1102200-59	Recommend the deletion of TR-4 Mitigation Measure. Applicant proposal in ASC Section 4.3.3 addresses this potential for changes prior to construction. Applicant proposes to develop a detauled haul plan once wind turbines have been selected to confirm source locations and routes to be used during construction as well as anticipated loads and haul schedule. The current proposed Transportation Study provided would be verified and updated to include detailed condition assessments of roads to be used, structural assessments, and plans for improvementa and maintenance.	Transportation	Mitigation Measure TR-4 relates to decommissioning, not construction, and is required to ensure that no changes to transportation occurred during the life of the Project requiring updates to associated management plans or mitigation.	4.14.2.4	n/a
Scout Clean Energy	1102200-60	Mitigation measure Socio-ec-1 would require an additional housing analysis prior to decommissioning. The justification for this measure is not clear; impacts to housing from decommissioning are assessed as negligible. In accordance with WAC 197-11-660, we request that this measure be removed as it is not related to specific adverse environmental impacts, nor is it tied to policies, plans, rules, or regulations formally designated by an agency.	Socioeconomics	As housing market upon decommissioning would be likely very different compared to current market conditions, this mitigation measure is required for fair assessment of impacts at time of decommissioning.	4.16	n/a
Scout Clean Energy	1102200-61	In Table 3.8-1A, PL Goal 4 Policy 1 states "..the Applicant's ASC provides documentation of tribal consultation." However, as described in Section 3.9, consultation between EFSEC and Tribes has not formally been initiated, and Scout and HRA's communication with the Tribes does not constitute consultation. Recommend revising this statement to replace "consultation" with "discussions".	Land and Shoreline Use	Acknowledged, requested revisions will be addressed in FEIS.	Appendix 3.8-1	Replace reference to "consultation" with "discussions" for more clarity.
Scout Clean Energy	1102200-62	Recommend changing various setback distances from property lines and roadways described in the draft EIS to reference the correct version of the BCC to clarify that the Project is in compliance with the standard that was in effect at the time the application was submitted. For example, references to wind turbine setbacks from dwellings in the draft EIS (Appendix 3.8-1 table 3.8-2A) are to a version of the Benton County Code that postdates the date of the application. The version of code in effect at the time the application was submitted (**February 2021**) states that all wind turbine bases must be set back from all dwellings not located on the same parcel at least one thousand (1,000) feet. Based on EFSEC precedent, a setback of four times the maximum blade tip height should be required. For the wind turbines described in Turbine Option 1, this setback distance is a minimum of 1,984 feet and for the wind turbines described in Turbine Option 2, this setback distance is a minimum of 2,684 feet. Similarly, the analysis references setbacks from exterior property lines and public road ROWs that were not in effect at the time the application was submitted. See **Attachment 3** for a copy of the BCC and Comprehensive Plan that was in effect at the time of application.	Land and Shoreline Use	Acknowledged, requested revisions will be addressed in FEIS where applicable.	Appendix 3.8-1 table 3.8-2A	Requested revisions will be addressed in FEIS accordingly.