

Aesthetics Technical Memorandum for the Horse Heaven Wind Farm Project

Prepared for
Horse Heaven Wind Farm, LLC

October 2021

Potential impacts to visual resources that could result from construction and operation of the Project are analyzed and described in this technical memorandum. The Project Lease Boundary encompasses approximately 72,428 acres primarily on privately held land with some DNR state trust land. Section 2.3 of the Application for Site Certification (ASC; Horse Heaven Wind 2021) provides a detailed description of the various Project components and Figures 1 and 2 illustrate the location of the proposed Project facilities. The visual impact analysis evaluated the wind generator turbines (Turbines), solar arrays, and transmission lines due to their height and spatial area. Other features located within the Project Lease Boundary (meteorological towers, substations, battery energy storage system [BESS] areas) are mostly surrounded by larger or more numerous features, or will be located underground, and therefore were not the focus of the visual analysis. The following specifications were used in the visual analysis:

Turbines

Four different Turbine models across two different Turbine layouts were evaluated as outlined in Table 2.3-1 of the ASC. The four Turbine models are grouped into two Turbine Layout options (i.e., Turbine Layout Option 1 and Turbine Layout Option 2) based on the MW output and overall size of the Turbine models considered. Option 1 consists of Turbines with a nameplate generating capacity of 2.82 MW and 3.03 MW of energy and a maximum height of about 496-499 feet (151-152 meters); Option 2 consists of Turbines with a nameplate generating capacity of 5.5 and 6.0 MW of energy and a maximum height of about 657-671 feet (200-204 meters). Figures 1 and 2 illustrate proposed Turbine Layout options.

This analysis uses the GE 2.82 MW Turbine for Option 1 (499 feet maximum height) and the GE 5.5 MW Turbine for Option 2 (671 feet maximum height), as they represent the greatest potential visual impact for each Turbine Layout option.

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 FAA Advisory Circular 70/7460-1M.

Solar Arrays

The major components of the proposed solar energy generation systems consist of the solar modules, tracking/racking systems, posts, and related electrical equipment (e.g., inverters and transformers). These components are combined to form a solar array. Although the Benton County Code allows a maximum solar panel height of 20 feet, the most likely maximum height is 15 feet and the analysis was performed using this value. Three solar arrays, identified as Western (County Well Road), Western (Sellars Road), and Eastern (Bofer Canyon), are located in the Project Lease Boundary. The solar arrays would be enclosed by a 6-foot-tall security fence. The solar panels would be equipped with a non-reflective finish/coating.

Transmission Lines

A new 230-kV single-circuit transmission line would be constructed to connect the Project's substations as well as interconnect with the regional grid at Bofer Canyon. For a short distance (less than 0.5 mile) at Webber Canyon, there would be a 500-kV single circuit transmission line to connect the Project's step-up substation to the regional grid. While there are six possible

transmission line route alternatives being considered in the western portion of the Project, the visual analysis considers all possible routes collectively to provide a conservative assessment of impacts. The transmission line would be suspended above ground on single steel monopole structures and the structure height would primarily be approximately 110 feet above grade. Where the transmission line steps up to 500 kV, the support structures would be approximately 135 feet above grade. The viewshed analysis accounts for this minor increase in height.

Other Facilities

Two BESS facilities may be developed for the Project. The BESS would use a series of self-contained battery banks and would be placed adjacent to the two intermediate Project substations and enclosed within a separate fence. Each BESS would occupy up to approximately 6 acres.

Up to four substations would be required for the Project. Two of these Project substations would be co-located with the Project's O&M facilities (one O&M building at HH-East near BPA's planned Bofer Canyon substation, and one at the HH-West Project substation). The Project's substations would be fenced, and consist of substation transformers, circuit breakers, switching devices, auxiliary equipment, a control enclosure (containing equipment for proper control, protection, monitoring, and communications), and associated equipment and facilities. The area within the Project substations' fence line would be graded/flattened and contain a bed of crushed rock. The Project substations would be enclosed by a security wire mesh fence designed in accordance with industry standards to provide safety and security. See Section 2.3 of the ASC (Horse Heaven Wind 2021) for additional detail regarding other Project infrastructure.

1.0 PROJECT LEASE BOUNDARY EXISTING CONDITIONS

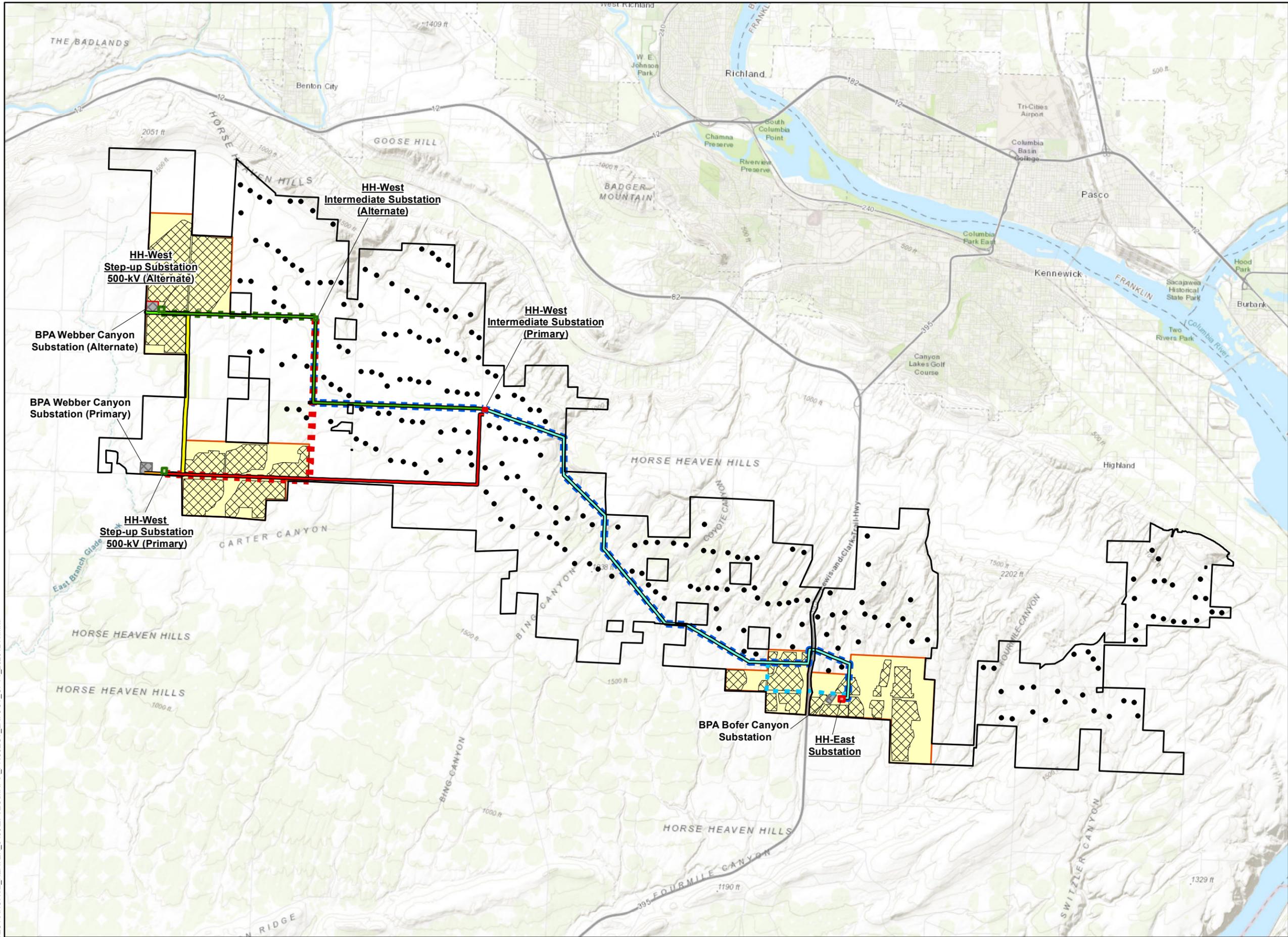
The Project is located within the Horse Heaven Hills area which consists primarily of cultivated crops (primarily dryland agriculture), pastureland (with some livestock grazing), and open shrub-steppe habitat and grassland. The topography gently slopes from north to south within the Project Lease Boundary and is dissected by minor drainageways. Multiple existing transmission lines and substations are located north of the Project Lease Boundary mostly traversing the area east-west. One transmission line crosses northeast-southwest through the east-central portion of the Project Lease Boundary and another transmission line crosses north-south adjacent to the western portion of the Project Lease Boundary. Multiple communication towers exist north of the Project Lease Boundary. One communication tower is located northwest of the Project on Chandler Butte while another is located southwest of the Project east of Highway 221, and another is located south of the Project along I-82. I-82/U.S. Highway 395 runs north-south through the Project Lease Boundary, roughly dividing it into western and eastern sections. The existing Nine Canyon Wind Project is on the east side of I-82 near Finley and the existing Turbines are visible when heading north through the proposed Project Lease Boundary. Other human modifications of the landscape in the area include local roads and low-to medium-density rural residential development.

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**Figure 1
Turbine Layout Option 1**

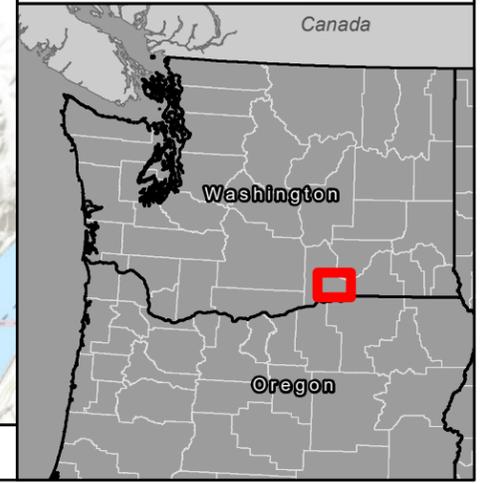
BENTON COUNTY, WA



- 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
- BPA Substation (Primary)
- BPA Substation (Alternate)



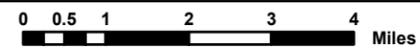
Reference Map



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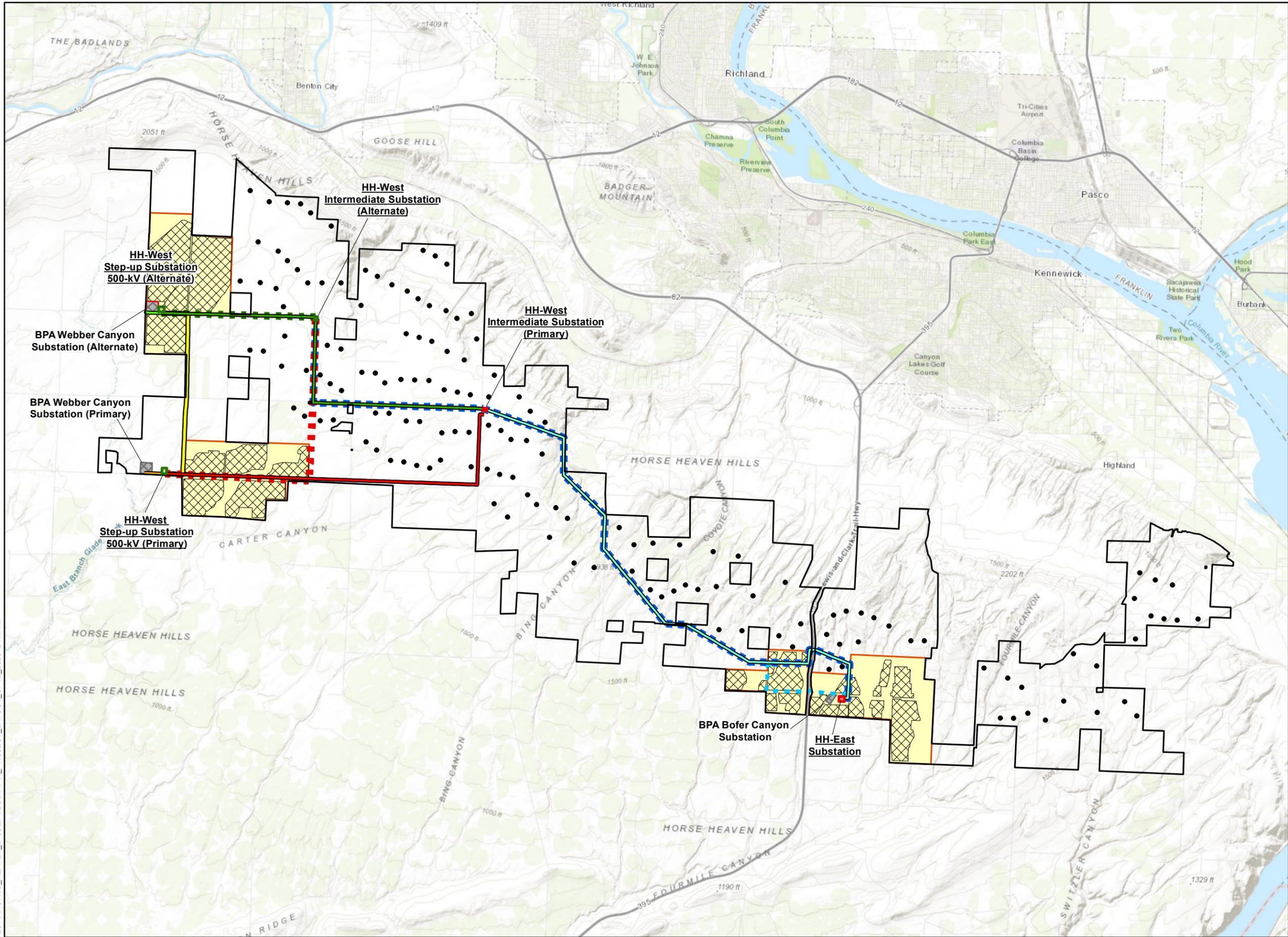
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Figure 2 Turbine Layout Option 2

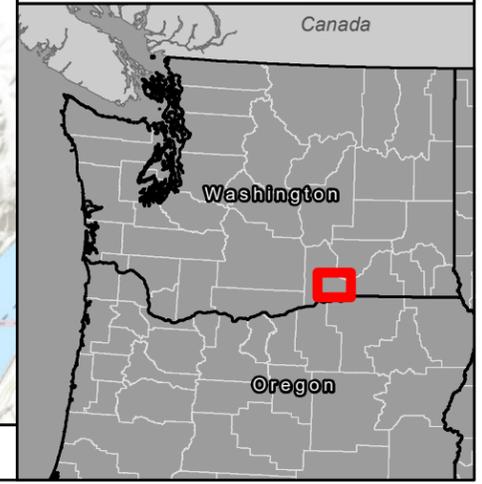
BENTON COUNTY, WA



- 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)



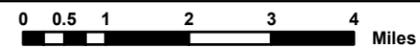
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2.0 VISUAL IMPACT ANALYSIS METHODOLOGY

Visual impacts are generally defined in terms of a project's physical characteristics and potential visibility, as well as the extent to which the project's presence would change the perceived visual character and quality of the environment in which it would be located. Where visible and noticeable, the Project facilities would introduce visual contrast and have the potential to create visual effects within the surrounding areas. The potential visual effects anticipated as a result of the construction and operation of the Project are discussed below. At the end of the Project's operational life, decommissioning would include removal of all equipment associated with the Project and returning the Project Lease Boundary to substantially the same condition as existed prior to Project development.

This visual impact analysis was completed to address requirements set forth in WAC 463-60-362(3) to describe the aesthetic impact of the proposed facility and provide the location and design of the facilities as well as depict how the Project will appear relative to the surrounding landscape. The EFSEC requirements do not specify a methodology to be used to evaluate potential aesthetic impacts. Enjoyment of a scenic resource is subjective and highly dependent on the viewer's perception of beauty and scenery and the addition of the Project facilities into a view may be detrimental to one viewer's enjoyment of a location but may have a negligible effect for a different viewer. Therefore, a process using the concept of "contrast" based on the Bureau of Land Management (BLM) Visual Resource Management (VRM) system is often used to objectively measure potential changes to landscape features of inventoried sensitive resources (BLM 1986a, 1984). Concepts from the BLM VRM system are widely used for a variety of projects and, with some modifications, have been applied successfully to projects that do not occur on lands under the jurisdiction of the BLM. In the BLM VRM system, potential visual effects are assessed by considering the level of contrast the Project facilities introduce to the existing landscape. There are multiple visual methodologies defined by federal agencies to review actions undertaken within their jurisdiction. For wind projects, three methodologies are commonly used to analyze visual impacts that may result from construction of a new project: the Federal Highway Administration (FHWA) Guidelines for the Visual Impact Assessment of Highway Projects (FHWA 2015); the United States Forest Service's (USFS) Scenery Management System (USFS 1995); and the BLM VRM system (BLM 1984). All of these methodologies have been used successfully to analyze impacts to these types of projects. These three agencies follow a similar approach to assessing visual impacts, which include: development of a project description to identify what is to be analyzed; identify and select key observation points from which visual impacts will be analyzed; prepare visual simulations and other associated graphics (e.g., viewsheds, line-of-sights) to depict how the project will look; assess impacts by comparing the change from what viewers see today against what the landscape would look like if the project is built. A methodology that includes assessment practices common to most major federal analysis systems and based on the BLM approach was utilized for this Project based upon the following:

- Project proximity to land under the jurisdiction of the BLM;

- The BLM methodology is a widely used, industry accepted approach to evaluate large energy projects for actions on federal and on private lands for federal, state and local permitting processes; and
- BLM has a formal process for assessing project impacts through evaluation of Visual Contrast Rating.

The BLM's visual contrast rating process (Handbook 8431-1, Visual Resource Contrast Rating [BLM 1986b]) was used as the basis for reviewing potential landscape changes resulting from the proposed Project and is discussed below and in Section 3.0.

2.1 VISUAL STUDY AREAS

The Project visual study area for the Turbines and transmission lines was defined as the area within 10 miles of the Project Lease Boundary, and the visual study area for the solar arrays was defined as the area within 5 miles of each solar array. The Project visual study areas were identified based on results of the viewshed analyses prepared for the Project (Figures 3 through 9). Although theoretical visibility of Turbines and solar arrays may extend beyond 10 and 5 miles, respectively, the visual study areas were defined to include the area where these features are likely to be noticeable to the casual observer. Viewer distance is a key factor in determining the level of visual effect, with perceived contrast generally diminishing as distance between the viewer and the affected area increases (BLM 1986b). Given the location of the Project, it is anticipated that viewers in closer proximity to the Project or viewers with elevated views would have the greatest potential to perceive changes to the landscape. The visual study areas encompass all proposed Project facilities.

Within the visual study areas, aerial photography was used to identify possible residential structures, travel ways, cultural resources, recreation, and other areas of interest and open space areas from which to identify potential visibility referred to as visual receptors. Additionally, the Applicant sought input from Benton County to identify potential areas of interest to local community members. Benton County noted potential interest on the part of residents located north of the Project. The resulting list of potential areas of interest were visited and photographed, and a selection of observation points ("receptors") was identified to represent the range of viewers and locations that have views of the area where Project infrastructure would be built.

Most potential visual receptors within the visual study areas are located to the north or northeast of the wind facility with the highest concentration between 1 to 3 miles. Visual receptors located to the south and west are less concentrated and located primarily between 1 and 2 miles from the wind facility. These receptors are depicted on the viewshed analysis figures described below.

2.2 VIEWSHED ANALYSIS

A viewshed analysis was conducted to evaluate the geographic extent of potential visibility of the Turbines, solar arrays, and transmission lines. The analysis was based on the height of the Turbines, the extent of the solar arrays, and the height of the transmission line poles because they are the largest and most geographically diverse Project components, and therefore, potentially the most noticeable introduction into the landscape. Although the proposed supporting components

(i.e., substations, BESS, O&M facilities) may also be visible from some locations, they would be less visible at distance and therefore a separate viewshed analysis was not prepared.

The viewshed analysis was performed using Esri ArcGIS software, employing a 10-meter digital elevation model to represent the terrain within the visual study areas. The bare earth modeling approach used in the viewshed analysis is based only on the effects of terrain on visibility, resulting in a conservative assessment of potential visibility. Such an approach does not account for the effects of vegetation or buildings, which could block or screen views in some places. In addition, the viewshed model does not account for lighting and atmospheric factors (such as weather) that can diminish visibility under actual field conditions. Thus, potentially “visible” areas identified in the viewshed analysis do not necessarily confirm that the Project would be visible or noticeable to the viewer.

Two different viewshed analyses were created for the maximum Turbine heights in each Turbine Layout Option. Figures 3 and 4, respectively, illustrate the potential visibility of the Turbine options. Three viewshed analyses were created to assess potential visibility for each of the three Solar Siting Areas (West 1 on County Well Road; West 2 on Sellards Road; and East at Bofer Canyon). Figures 5 through 7, respectively, illustrate the potential visibility of the solar panel areas. All three of the solar panel viewshed analyses assumed a maximum panel height of 15 feet. One viewshed analysis was created to represent potential visibility of all of the various transmission line options, the Project Intertie line between HH-West and HH-East substations and combined options for transmission lines from the HH-West Project substation to Webber Canyon (Figure 8). Note that the viewshed analysis shown on Figure 8 is a conservative combined analysis for multiple transmission line options. Because not all of these lines would be built, the viewshed analysis likely overstates the potential visibility of transmission lines that would ultimately be constructed.

2.2.1 Turbine Visibility

Project Turbines under Turbine Layout Option 1 would potentially be visible from approximately 86 percent of the area located within 5 miles of the Project and from 81 percent of the area within 10 miles of the Project. Project Turbines under Turbine Layout Option 2 would potentially be visible from a slightly larger 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. The taller Turbines in Turbine Layout Option 2 would be visible from a slightly larger portion of the analysis area, but fewer Turbines would be visible overall because this layout would have nearly 40 percent fewer Turbines than Turbine Layout Option 1. Areas identified as having potential visibility of large numbers of Project Turbines include most of the Horse Heaven Hills to the west and southwest of the Project; areas on the southwest-facing slopes of the Rattlesnake uplift formation, specifically Red, Candy, and Badger mountains; and areas ranging from approximately 8 to 10 miles to the north, northeast, and east of the Project, including parts of the Tri-Cities urbanized area and agricultural areas beyond. There would be a direct line of sight to a large majority of the Project Turbines in these areas identified as having potential visibility; however, with the distance and change in elevation, the entire Turbine (blades and tower) is not anticipated to be visible and in many cases only the blade tips or blades are visible. Notable areas in which potential visibility would be blocked by terrain include a large area in the lower Yakima

River Valley from Benton City westward; lower-elevation locations in the Badger Canyon area immediately to the north and northeast of the Project; and a large expanse of the eastern and southern parts of Benton County (Figures 3 through 4).

2.2.2 Solar Array Visibility

The three solar arrays (Western [County Well Road], Western [Sellars Road], and Eastern [Bofer Canyon]) would be potentially visible from approximately 45 percent, 51 percent, and 31 percent, respectively, of the area located within 5 miles of the Project (see Figures 5 through 7). The proposed solar arrays would appear as low geometric elements that are gray in color and would generally follow the gently rolling terrain landscape. The views can be different from one location to another, even in close proximity, because of the terrain and the screening effects of vegetation (including crops), and existing development. Viewers in proximity to the Project may have unobstructed or partially screened views and include residences and travelers along the local roads and highways. Areas identified as having potential visibility of the solar arrays include mostly flat to gently rolling terrain areas south of the Project. There would be a direct line of sight to a majority of the solar arrays in close proximity to the Project in these areas identified as having potential visibility; however, with the change in distance and elevation, the solar panels are unlikely to be always noticeable and in many cases will appear as a darker line on the horizon with indistinguishable features.

2.2.3 Transmission Line Visibility

Transmission Lines would potentially be visible from approximately 52 percent of the area located within 10 miles of the Project (Figure 8). The spatial extent of transmission line pole visibility would be similar to the Turbines discussed above. However, the poles would be much thinner than Turbines and would have no motion, so would be less noticeable especially with distance.

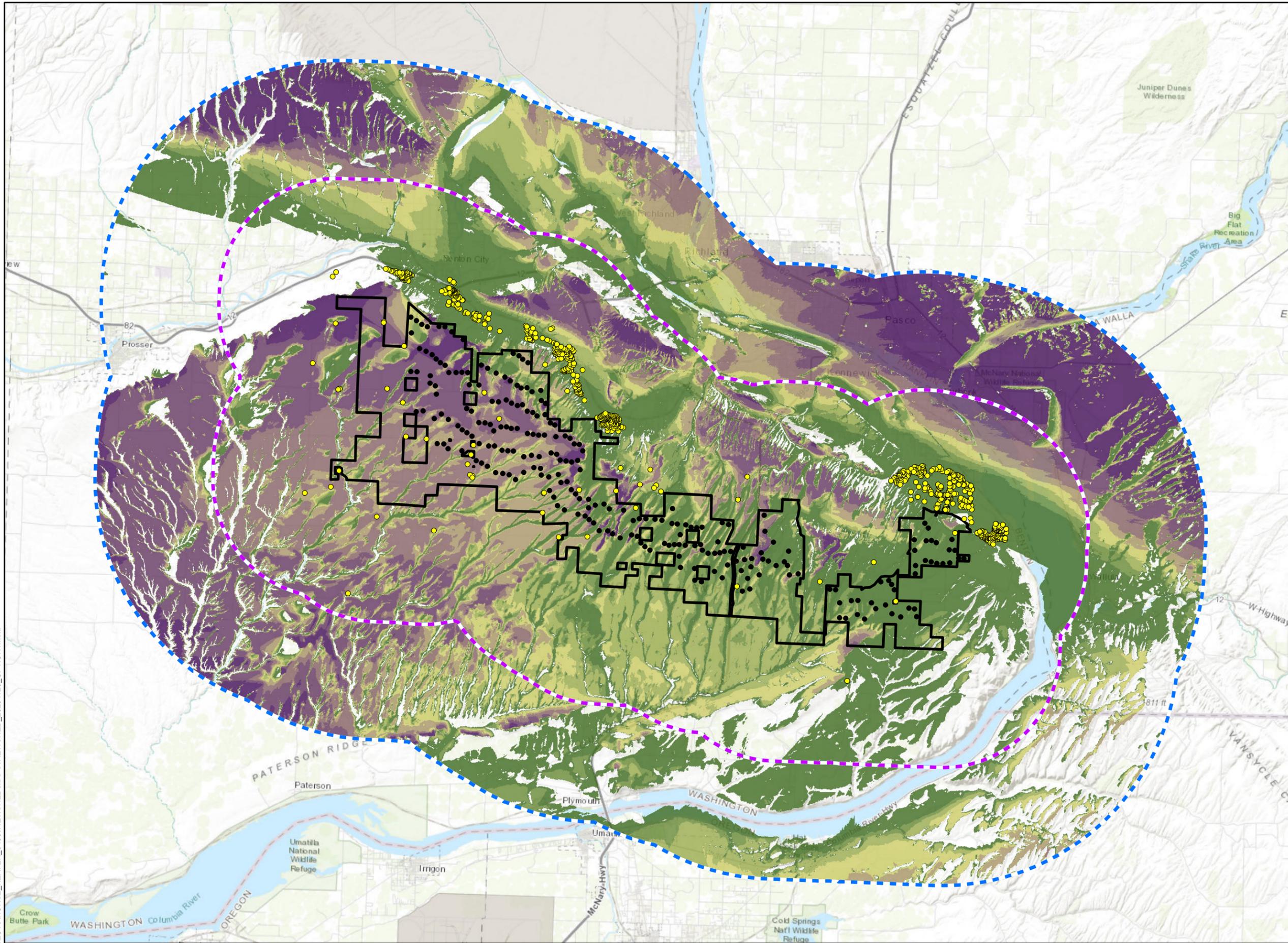
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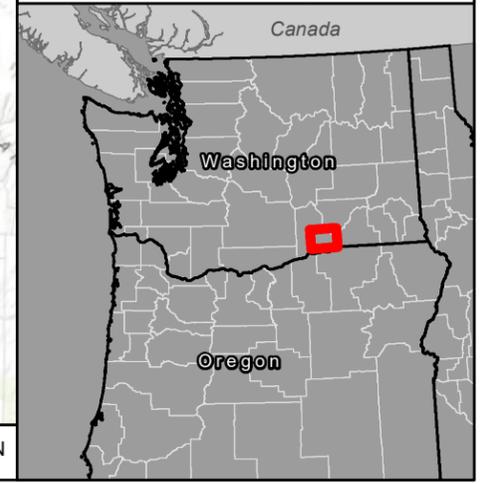
Figure 3
Viewshed Analysis Results:
Turbine Layout Option 1

BENTON COUNTY, WA

- Proposed Turbine Location
(244 Turbines modeled at 499' blade-tip height)
 - Visual Receptor
 - ▭ Project Lease Boundary
 - ⋯ 5 mile Buffer
 - ⋯ 10 mile Buffer
- Number of Turbines Potentially Visible
- | |
|-----------|
| 0 |
| 1 - 50 |
| 51 - 75 |
| 76 - 100 |
| 101 - 125 |
| 126 - 150 |
| 151 - 175 |
| 176 - 200 |
| 201 - 244 |



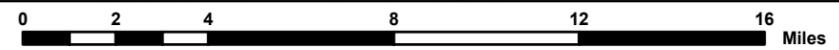
Reference Map



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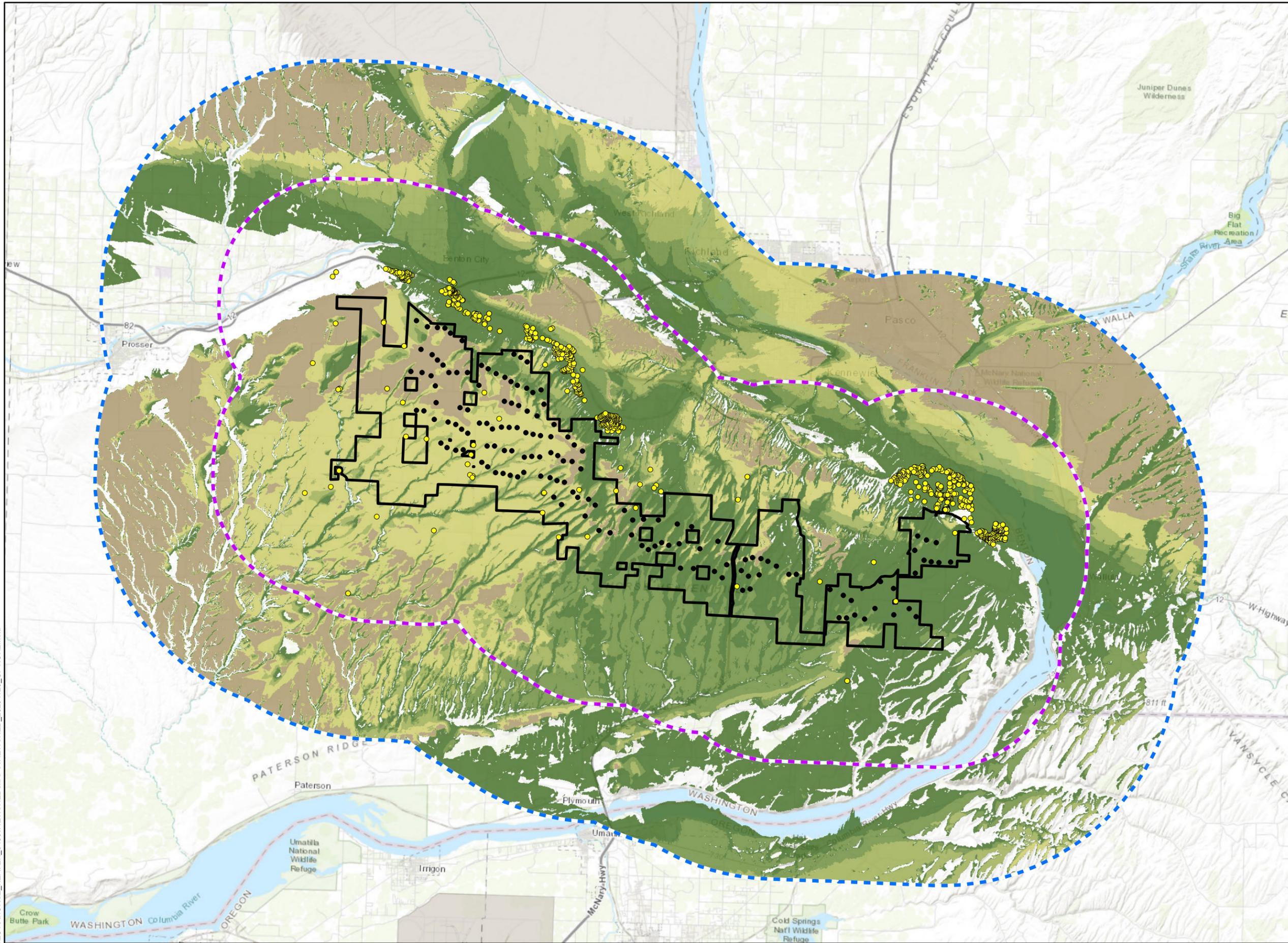
Horse Heaven Wind Farm



Figure 4
Viewshed Analysis Results:
Turbine Layout Option 2

BENTON COUNTY, WA

- Proposed Turbine Location
(150 Turbines modeled at 671' blade-tip height)
 - Visual Receptor
 - ▭ Project Lease Boundary
 - ⋯ 5 mile Buffer
 - ⋯ 10 mile Buffer
- Number of Turbines Potentially Visible
- | |
|-----------|
| 0 |
| 1 - 50 |
| 51 - 75 |
| 76 - 100 |
| 101 - 125 |
| 126 - 150 |
| 151 - 175 |
| 176 - 200 |
| 201 - 244 |



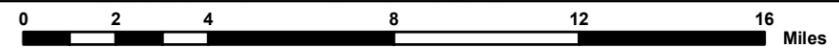
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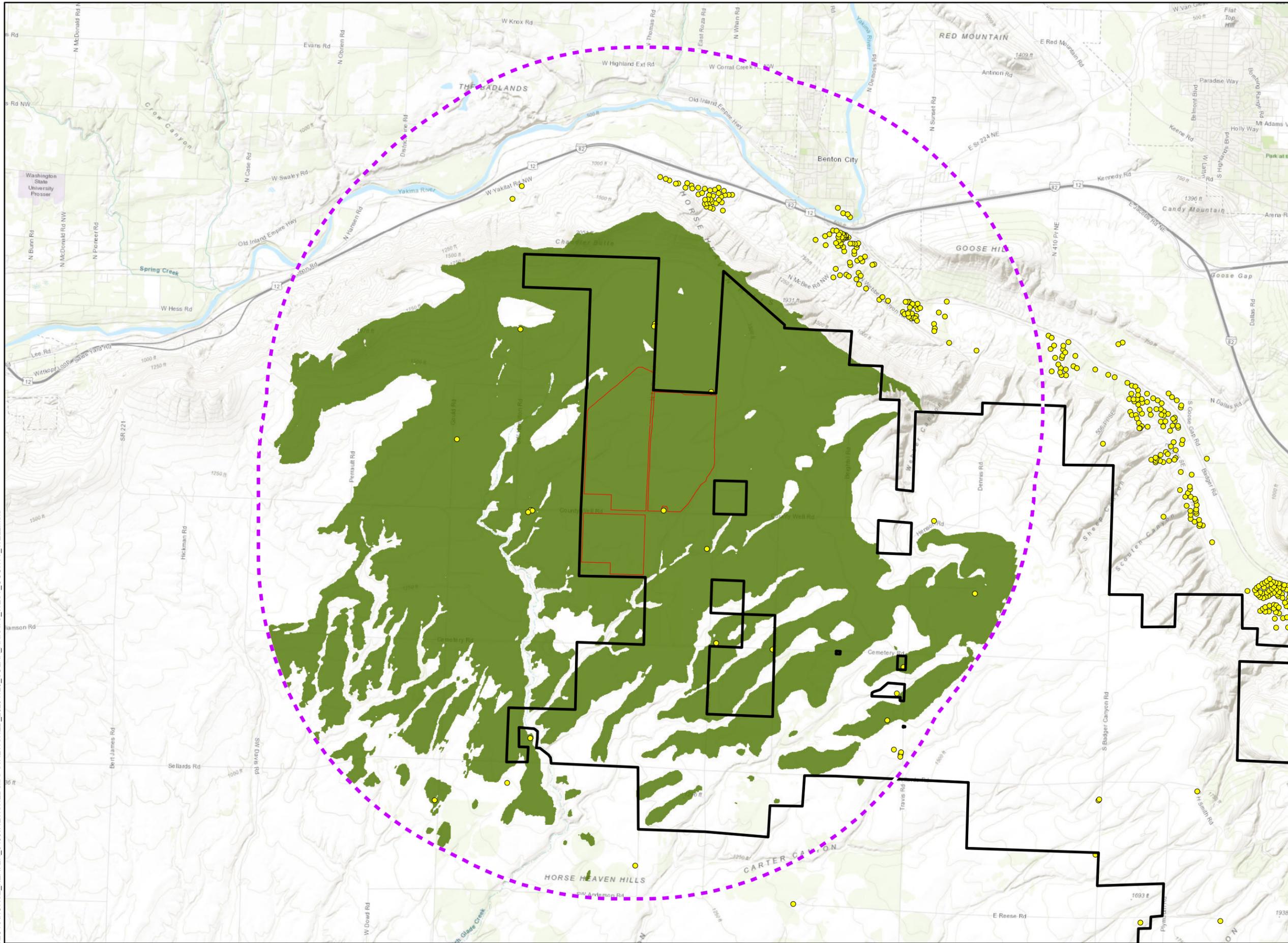
Horse Heaven Wind Farm



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



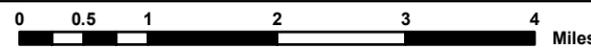
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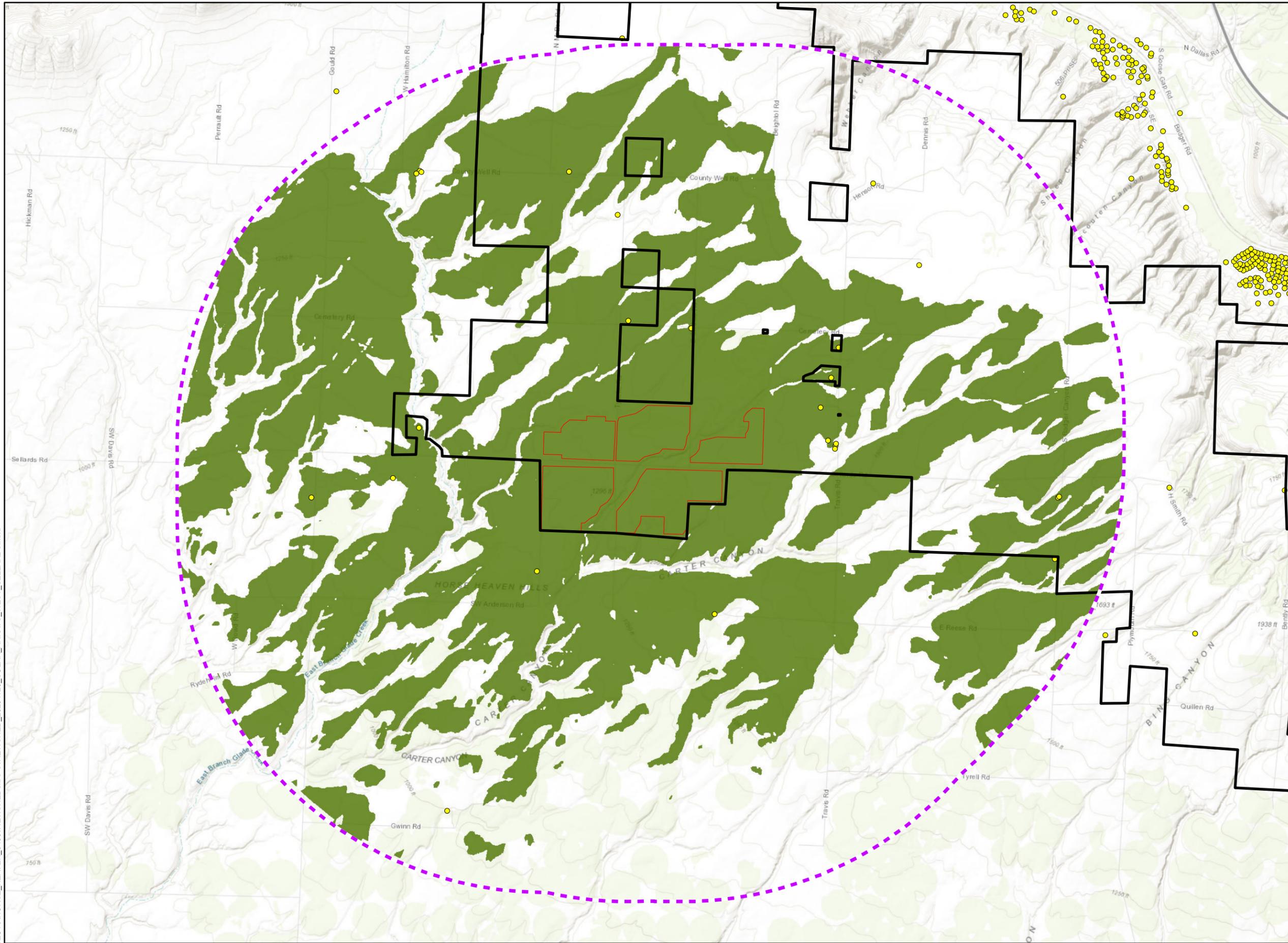
Horse Heaven Wind Farm



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



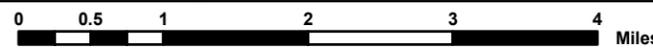
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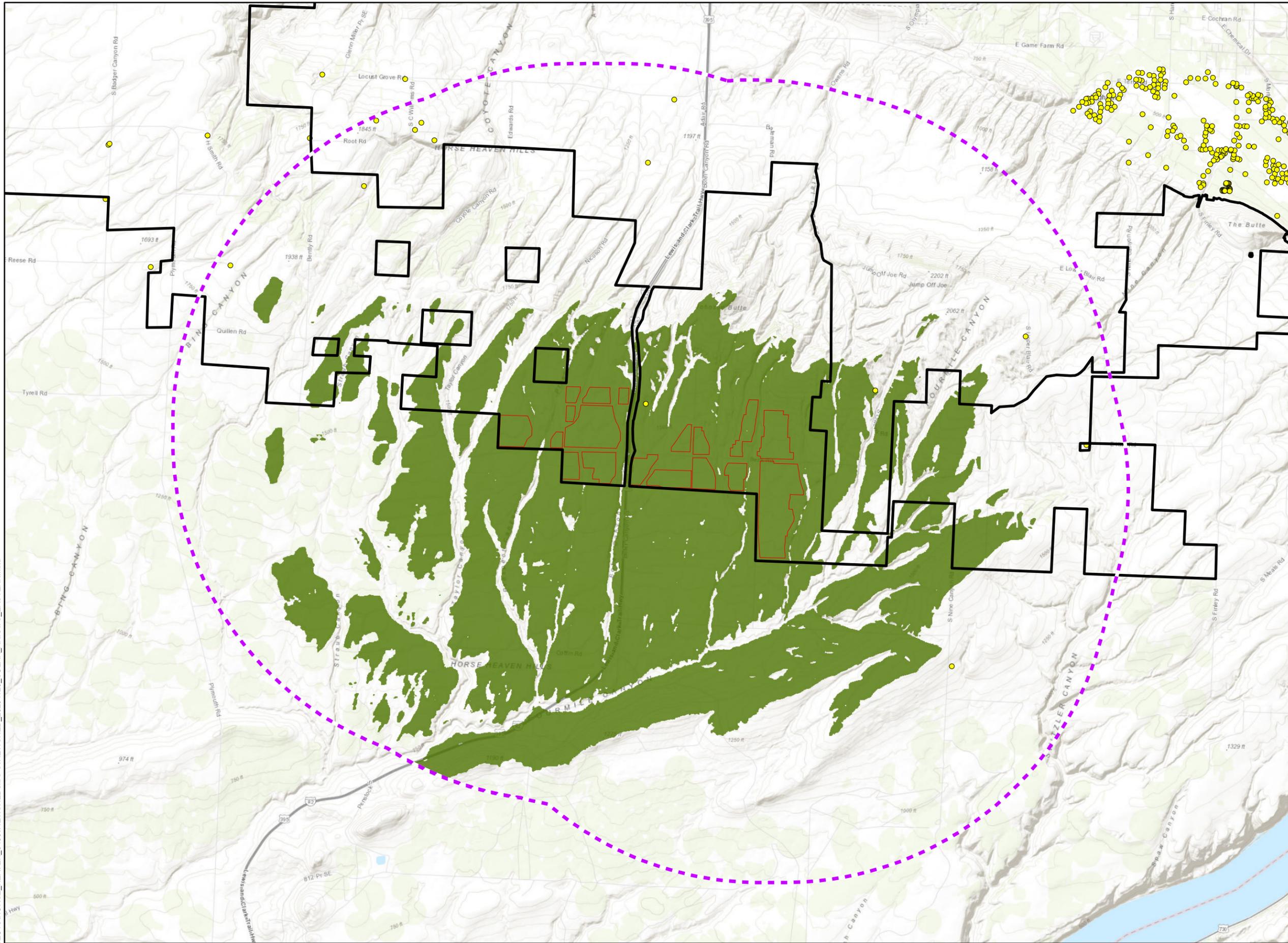
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Figure 7
Viewshed Analysis Results:
Eastern Solar Array
(Bofer Canyon)

BENTON COUNTY, WA

- Visual Receptor
- Solar Array Fence Line
- Project Lease Boundary
- Solar Array 5 mile Buffer
- Potentially Visible
- Not Visible



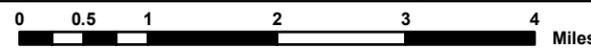
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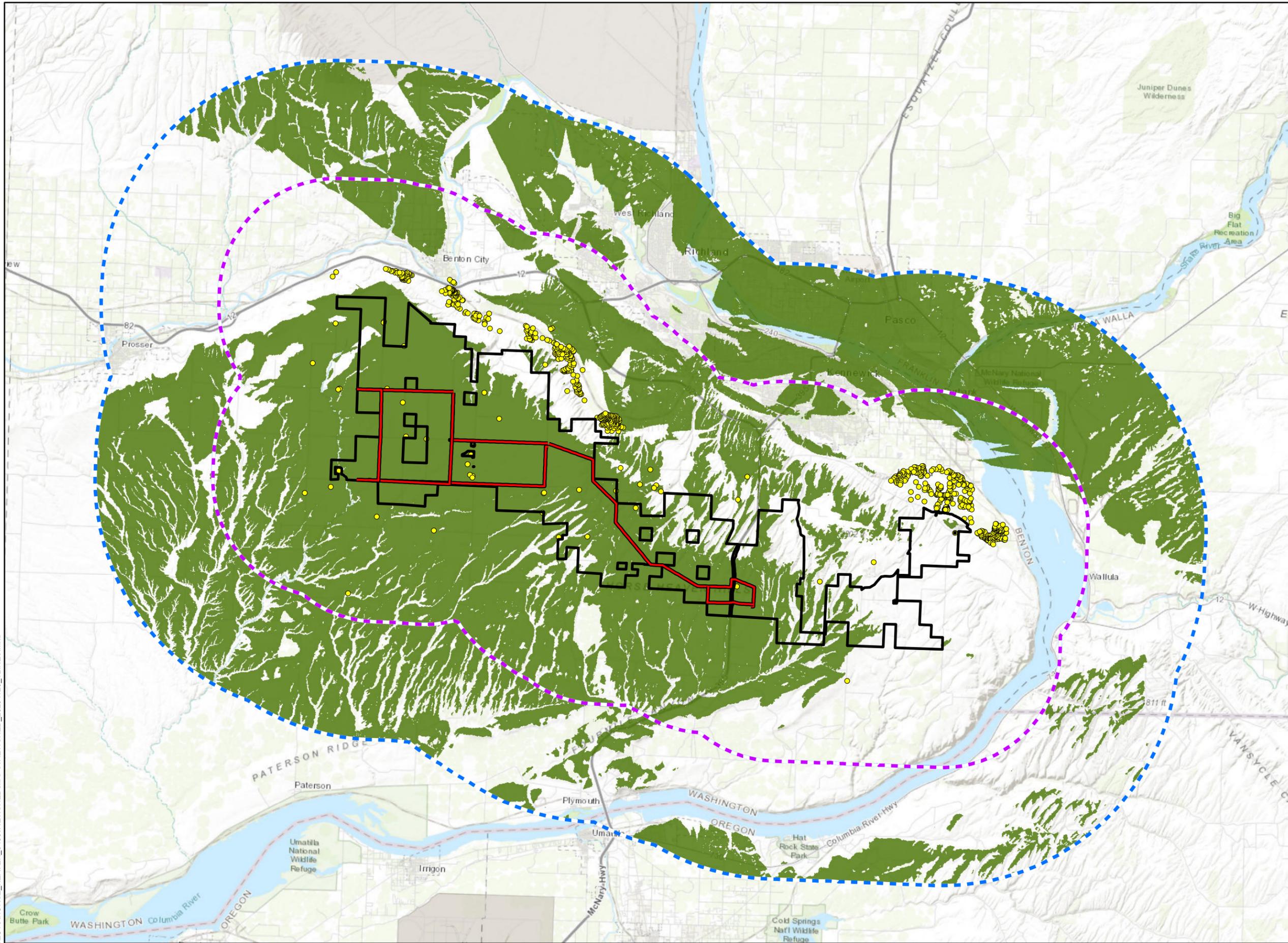
Horse Heaven Wind Farm



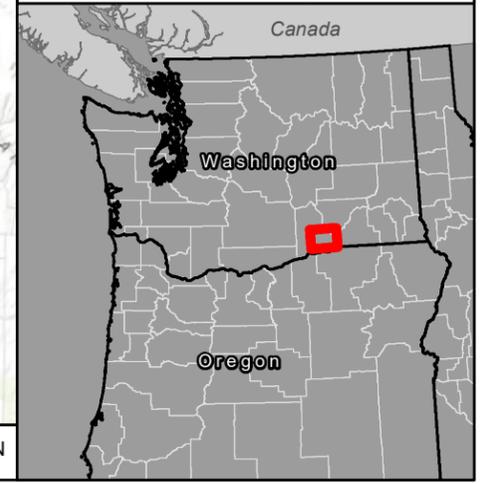
Figure 8 Viewshed Analysis Results: Proposed Transmission Lines

BENTON COUNTY, WA

- Proposed Transmission Line
- Visual Receptor
- Project Lease Boundary
- 5 mile Buffer
- 10 mile Buffer
- Potentially Visible
- Not Visible



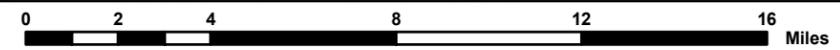
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2.3 VIEWER TYPES AND VISUAL SENSITIVITY

Viewer reactions to changes in the landscape 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. Motorists' concern generally depends on when and where travel occurs, and the type of travel involved (e.g., commuting vs. recreational travel). The types of users in the visual study areas include residents of the adjacent Tri-Cities communities, including Benton City, Burbank, Kennewick, Pasco, and Richland; travelers on the various interstates and highways; recreators to the Rattlesnake, Red, Candy, and Badger mountains, McNary National Wildlife Refuge, and other facilities in the area. The Project Lease Boundary is 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 (see Section 4.2.5 of the ASC [Horse Heaven Wind 2021] for more details on cultural resources).

Scenic views designated in land use plans adopted by federal, state, or local government entities typically formalize a widely recognized visual value of a resource and the public's desire to protect that value (e.g., a designated wilderness or scenic area). Where such official designations exist, the public expectation may be that the view at the location or of the identified resource will be preserved, and the viewer concern is considered high. Benton County has adopted planning goals and policies in their Comprehensive Plan (Benton County 2020) to conserve areas of potential value to the county and its residents. The following planning goals and policies are noted below and most applicable to this visual analysis:

- 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.
- Policy 5: Consider the preservation of the ridges and hillside areas through various development regulations.

The types of viewers present within the visual study areas are classified as local residents, travelers, tourists and recreational users. The following discussion summarizes the composition of these groups and characteristics that define visual sensitivity for each.

2.3.1 Local Residents

The local resident viewer group consists of people who live within the visual study areas. Concentrations of residences are found in the suburban neighborhoods north of the Project Lease Boundary in the outskirts of the nearby cities Kennewick, Pasco, and Richland. Smaller concentrations of residences are found east, west, and south of the Project Lease Boundary. Outside of these communities, low-density residential uses are scattered throughout the visual study areas. Generally, local residents view the landscape from their yards and homes, and often from places of employment while engaged in daily activities.

Residents' sensitivity to visual change can be variable and may be tempered by the visual character and setting of their neighborhoods. For example, residents with a view of existing

commercial or industrial facilities may be less sensitive to landscape changes than those with a view of forested areas. It is assumed, however, that local residents are generally familiar with the local landscape and may be more sensitive to changes in views that are important to them.

2.3.2 Through-Travelers and Commuters

This viewer group consists of through-travelers and daily commuters traveling through the area on their way to work or those who are engaged in other types of business or personal travel. Travelers passing through an area typically view the landscape from motor vehicles. Through-travelers and commuters will typically be concentrated on major roads including I-82 and U.S Highway 395. Furthermore, they do not tend to stop along their travel routes, have a relatively narrow field of view because they are focused on road and traffic conditions, and are destination oriented. Passengers in through-travel and commuter vehicles may have greater opportunities for prolonged off-road views toward landscape features and, accordingly, may have a greater perception of changes in the visual environment. It is anticipated that the level of sensitivity of this user group will vary; with less sensitivity to visual change experienced by through-travelers or commuters passing through the visual study areas and higher sensitivity to visual change experienced by local commuters who are traveling through the area daily.

2.3.3 Tourists and Recreational Users

This viewer group includes tourists and recreational users visiting from outside of the local area, as well as local residents engaged in recreational activities. These viewers can be involved in outdoor recreational activities at parks and other developed recreational facilities or in undeveloped natural settings such as forests, fields, and water bodies. Tourists and recreational users come to the area to experience its cultural, scenic, and/or recreational resources. They may view the landscape while travelling to these destinations on local roads, or from the recreational sites themselves.

The recreational user group includes those involved in active recreation (e.g., bicyclists, hikers, joggers, hunters, recreational boaters) and those involved in more passive recreational activities (e.g., picnicking, sightseeing, wildlife observation, or walking). For some of these viewers, scenery is a very important part of their recreational experience, and recreational users may have continuous views of landscape features over relatively long periods of time. Other recreational users may be focused on their activities with only periodic views or focus on the surrounding landscape and are less likely to notice changes to the visual environment. Recreational users' sensitivity to visual quality and landscape character will be variable, depending on their reason for visiting the area. For example, an off-highway vehicle recreation user is considered less sensitive to visual change than a wildlife viewer or a recreator looking for a cultural experience. However, recreators are generally considered to have relatively high sensitivity to scenic quality and landscape character.

Within the visual study areas, there are numerous opportunities for recreational activities including nature trails/hiking, picnicking, boating, fishing, hunting, swimming, and wildlife watching.

As distinguished from recreational visitors, tourists may be just passing through the local area or staying for a period of varying duration to enjoy local attractions. Tourists typically come to the area for activities such as visiting historic or geologic sites, taking sightseeing tours, visiting

friends and family, and attending festivals or events, but they may also engage in recreational activities while they are present. Consequently, there is a considerable degree of overlap among recreational and tourist visitors in terms of activity patterns and user characteristics.

2.4 SCENIC QUALITY

Scenic quality is determined by rating the distinctiveness and diversity of interest of a particular natural landscape. The BLM Scenic Quality Class Rating (BLM 1984) definitions are provided below:

- Class A – Unique: Landscapes are represented by unique lands of outstanding or distinctive diversity or interest, including high-relief mountains, escarpments, highly dissected canyons, monumental landforms, and scenic river ways.
- Class B – Above Average: Landscapes are lands of above average diversity of interest and consist of rolling, vegetated hills and valleys, mesas, buttes, and unique landforms that define the environment.
- Class C – Common: Landscapes are primarily common and of minimal diversity, such as high desert plateaus and desert plains areas with few distinguishing features.

A scenic quality evaluation was used to determine the natural landscape based on the degree of distinctiveness, which takes into consideration such factors as landform, vegetation, color, water, adjacent scenery, scarcity, and cultural modification.

2.5 DISTANCE ZONES

Viewing distance is a key factor in determining the level of visual effect, with perceived contrast generally diminishing as distance between the viewer and the affected area increases (BLM 1986b). Distance zones are developed based on perception thresholds, the scale and nature of objects being viewed, and the viewing environment. Both natural and human-made elements become less obvious and less detailed at greater distances and perception of texture and color also becomes less noticeable with increased distance. The BLM Manual 8410-1 (BLM 1986a), Visual Resource Inventory, defines distance zones as follows, which were adopted for this analysis:

- Foreground/Middleground – 0 to 5 miles (this study refers to the Foreground Distance Zone as 0 to 0.5 mile and the Middleground Distance Zone as 0.5 to 5 miles)
- Background – 5 to 15 miles
- Seldom Seen – Beyond 15 miles

2.6 INVENTORY POINT SELECTION

The results of the viewshed analysis were used to identify specific locations for field review; these locations are referred to as inventory points. Photographs of the visual study areas were taken from each of the inventory points during field visits conducted in August 2018, February 2020, and December 2020. A subset of the inventory points was selected for detailed analysis

(representative viewpoints), discussed further below. Photographic simulations of the representative viewpoints can be found in Appendix A.

2.7 REPRESENTATIVE VIEWPOINTS AND PHOTOGRAPHIC SIMULATIONS

Seven representative viewpoints were selected to represent different cardinal directions, elevations, and distances from the Project to represent perspectives from which the public will be expected to be able to observe the Project once constructed. These locations were selected to represent the viewer types/groups in the visual study areas, identified from known vantage points along public transportation routes, neighborhoods, and parks and trails and are analyzed further in the following sections. Figure 9 presents the locations of the seven selected inventory points.

Photographs of the existing conditions were taken from the selected viewpoints towards the proposed Project Lease Boundary. At two of these viewpoints (i.e., representative viewpoints 2 and 4) photos in more than one direction were taken. 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.

Table 1 provides a list of selected representative viewpoints, which are shown on Figure 9. Photographic simulations are provided in Appendix A. Table 2 provides a summary of existing scenic quality and proposed Project visual impacts. The overall visual impact rating for each representative viewpoint was determined by evaluating scenic quality, viewer sensitivity, distance zone, and contrast expected to be introduced by development of the Project. Numerical values were assigned to the ratings in each category (i.e., scenic quality, contrast rating, viewer sensitivity, distance zone) as outlined below:

1. Low viewer sensitivity, weak contrast, Class C scenic quality, or background viewing distance.
2. Moderate viewer sensitivity, moderate contrast, Class B scenic quality, or middleground viewing distance.
3. High viewer sensitivity, strong contrast, Class A scenic quality, or foreground viewing distance.

Horse Heaven Wind Farm



Figure 9
Representative Viewpoint Locations
BENTON COUNTY, WA

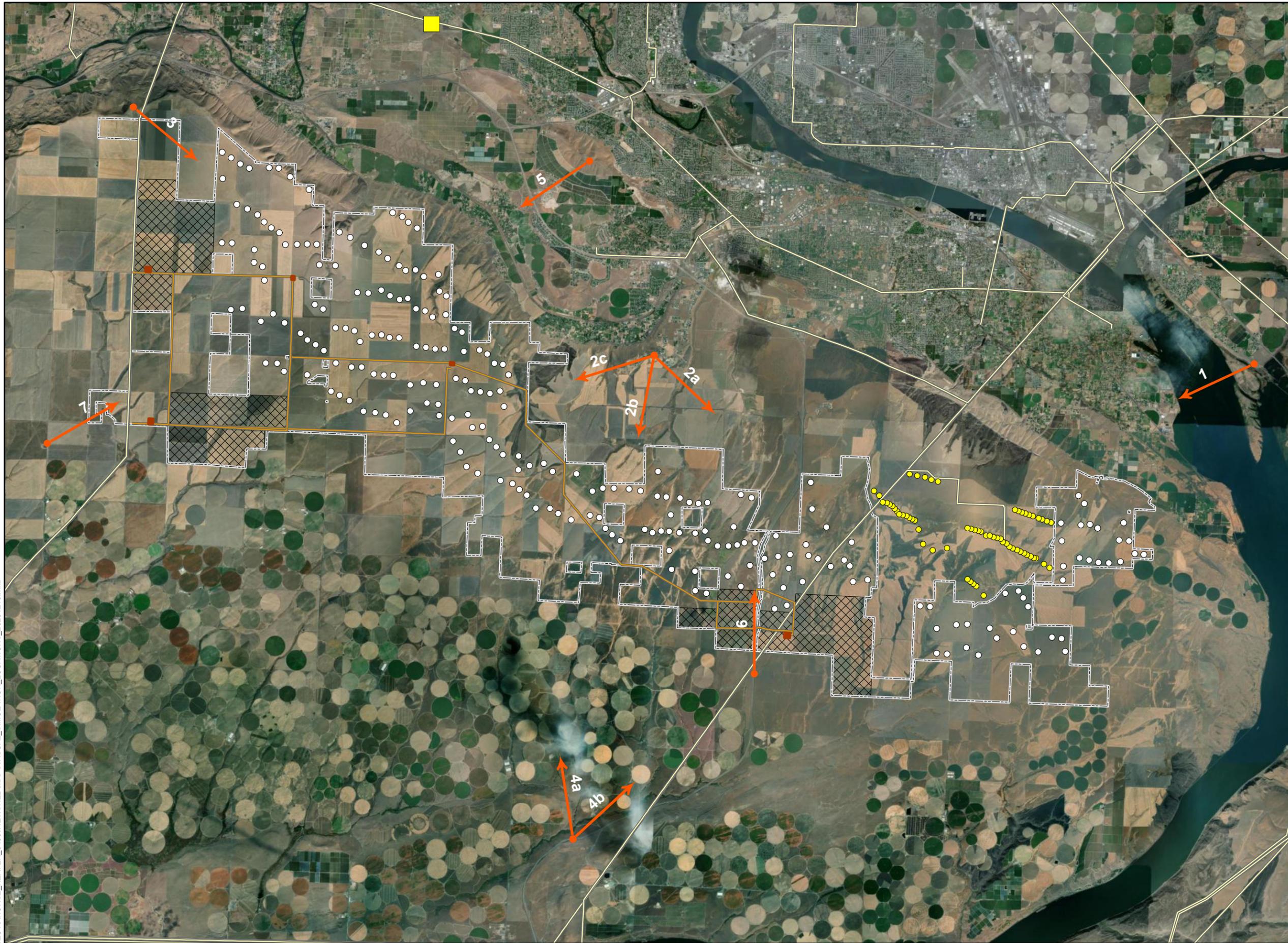
- Viewpoint with Direction
- Option 1 Turbine Location
- Proposed Substation
- Proposed Transmission Line
- Project Lease Boundary
- Solar Siting Area
- Existing Turbine
- Existing Substation
- Existing Transmission Line



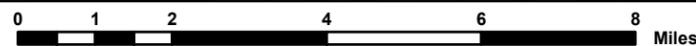
Reference Map



R:\PROJECTS\HORSE_HEAVEN_6430\VIEWSHED\MAPS\VISUAL_SIMULATION_LOCATIONS_20201216.mxd



1:150,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

Table 1. Selected Representative Viewpoints

Representative Viewpoint	Representative Viewpoint Name	Location	Description^{1/, 2/}	Viewer Types
1	McNary National Wildlife Refuge (NWR)	McNary NWR, along the Columbia River, 3 miles southeast of Burbank, 0.5 mile west of U.S. Route 12.	Viewpoint is located along an unpaved road within McNary NWR, looking southwest across the Columbia River towards the Project Lease Boundary. The closest potential Turbine is approximately 5.2/5.8 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Recreational, Residential
2a	S Clodfelter Road – East	Manuel Dr., just north of S. Clodfelter Road, 2.2 miles south from Interstate 82 (I-82)	Viewpoint is located along the south side of Manuel Dr. toward S. Clodfelter Road, looking southeast. The closest potential Turbine is approximately 3.9/4.8 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Residential
2b	S Clodfelter Road – Central	Manuel Dr., just north of S. Clodfelter Road, 2.2 miles south from I-82	Viewpoint is located along the south side of Manuel Dr. toward S. Clodfelter Road, looking south. The closest potential Turbine is approximately 3.0/3.5 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Residential
2c	S Clodfelter Road – West	Manuel Dr., just north of S. Clodfelter Road, 2.2 miles south from I-82	Viewpoint is located along the south side of Manuel Dr. toward S. Clodfelter Road, looking southwest. The closest potential Turbine is approximately 3.7/3.7 miles away. The closest potential transmission line is 3.4 miles away. Solar arrays and substations/BESS would not be visible from this location.	Residential
3	Chandler Butte	East side of Chandler Butte, just outside the gates leading to the communication towers.	Viewpoint is located along the unpaved road east of the communication towers, looking southeast. The closest potential Turbine is approximately 2.5/2.8 miles away. The closest potential solar array is approximately 2.1 miles away. The closest potential transmission line is 4.2 miles away. The substations/BESS would be visible from this viewpoint but would be outside of the photo frame.	Recreational

Representative Viewpoint	Representative Viewpoint Name	Location	Description^{1/, 2/}	Viewer Types
4a	I-82 South	Along I-82/U.S. Highway 395 approximately 0.8 mile southwest of 812 Prairie SE.	Viewpoint is located along the right shoulder of the highway, looking northwest. The closest potential Turbine is approximately 7.3/7.3 miles away. The closest potential transmission line is 6.5 miles away. The solar arrays and substations/BESS would not be visible from this viewpoint.	Vehicle Travel
4b	I-82 South	Along I-82/U.S. Highway 395 approximately 0.8 mile southwest of 812 Prairie SE.	Viewpoint is located along right shoulder of the highway, looking northeast. The closest potential Turbine is approximately 7.0/7.3 miles away. The closest potential solar array is approximately 6 miles away. The closest potential transmission line is 6.5 miles away. The substation (HH-East)/BESS would be visible from this viewpoint.	Vehicle Travel
5	Badger Mountain	Along Badger Road, 0.5 mile northwest of Canyon View Road Northeast.	Viewpoint is located along the southern side of the top of Badger Mountain looking southwest. The closest potential Turbine is approximately 4.7/4.7 miles away. Solar arrays, transmission line, and substations/BESS would not be visible from this location.	Recreational
6	Bofer Canyon Road/I-82	Along Bofer Canyon Road, approximately 12.3 miles northeast of 6th Street.	Viewpoint is located along the right shoulder of the road, looking north. The closest potential Turbine is approximately 1.7/1.8 miles away. The closest potential solar array is approximately 0.6 mile away. The transmission line is 1.2 miles away. The substation (HH-East)/BESS would be visible from this viewpoint but would be outside the frame of this photo.	Vehicle Travel
7	Highway 221	Along Highway 221, approximately 0.5 mile south of Sellards Road.	Viewpoint is located along the right shoulder of the highway, looking northeast. The closest potential Turbine is approximately 5.8/5.8 miles away. The closest potential solar array is approximately 3.1 miles away. The closest transmission line is 2.2 miles away. The substation (HH-West)/BESS would be visible from this location.	Vehicle Travel, Residential

Representative Viewpoint	Representative Viewpoint Name	Location	Description^{1/, 2/}	Viewer Types
8a	Kennewick (Canyon Lakes Area) – South	At the southern end of S Olson St where pavement ends, approximately 1 mile southeast of Highway 395.	Viewpoint is located on the southwest end of S Olson St, looking south. The closest potential Turbine is approximately 3.6/5.4 miles away. The closest potential solar array is approximately 5.9 miles away. The closest transmission line is 7.4 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Residential
8b	Kennewick (Canyon Lakes Area) – West	At the southern end of S Olson St where pavement ends, approximately 1 mile southeast of Highway 395.	Viewpoint is located on the southwest end of S Olson St, looking west. The closest potential Turbine is approximately 8.8/8.8 miles away. The closest potential solar array is approximately 14.5 miles away. The closest transmission line is 8.4 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Residential
9	Benton City	Along Division Street/State Route 225, between Edith Avenue to the south and Ellen Avenue to the north, approximately 1 mile north of I-82.	Viewpoint is located on the east side of Division Street/State Route 225, looking south. The closest potential Turbine is approximately 2.7/2.7 miles away. The closest potential solar array is approximately 3.9 miles away. The closest transmission line is 5.5 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Commercial, Residential, Vehicle Travel
10	Badger Road	Along Badger Road, approximately 0.1-mile west of N 543 PR NE and approximately 1.5 miles southwest of I-82.	Viewpoint is located on the north side of Badger Road, looking southwest. The closest potential Turbine is approximately 1.5/1.5 miles away. The closest potential solar array is approximately 6.4 miles away. The closest transmission line is 4.3 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Residential, Vehicle Travel
11	Highland/Finley Area	Along E Cougar Road just east of S Nine Canyon Road, in front of Finley Elementary School.	Viewpoint is located on the north side of E Cougar Road near an entrance driveway to Finley Elementary School, looking southeast. The closest potential Turbine is approximately 2.0/2.5 miles away. The closest potential solar array is approximately 8.5 miles away. The closest transmission line is 8.7 miles away. Solar arrays, transmission lines, and substations/BESS would not be visible from this location.	Residential, Local School

Representative Viewpoint	Representative Viewpoint Name	Location	Description ^{1/, 2/}	Viewer Types
12	County Well Road	Along County Well Road, approximately 2 miles east of Highway 221	Viewpoint is located on the left shoulder of County Well Road, looking northeast. The closest potential Turbine is approximately 2.5/2.5 miles away. The closest potential solar array is approximately 0.2 mile away. The closest transmission line is 0.2 mile away. The substation (HH-West, Alt)/BESS would be 0.5 mile away and would be visible from this location.	Vehicle Travel, Residential
13	Travis Road South of Sellards Road	Along Travis Road, approximately 0.1-mile south of Sellards Road	Viewpoint is located on the right shoulder of Travis Road, looking north. The closest potential Turbine is approximately 1.1/1.1 miles away. The closest transmission line is 0.1 mile away. The closest potential solar array would be visible outside of this photo frame within approximately 1.0 mile. The substation (HH-West)/BESS would not be visible from this location.	Vehicle Travel, Residential

Note:

1/ Mileages reported here are for Turbine Layout Option 1 and Options 2, respectively.

2/ Views are discussed in terms of the specific photo frame/simulation; however, some views may have more sweeping views of the Project.

BESS – battery energy storage system

The ratings in each category were totaled and an average was then taken. An averaged value of 1 or less received a low overall rating. Averaged values between 1.1 to 2 received a low-moderate overall rating, and so forth. Overall visual impact ratings are generally described as follows:

- 1 - Low Impact: The viewpoint is typically located in an area of common scenic quality and low visual sensitivity. Project features are located farther away from the viewer in the background or middleground distance zones and contrast is anticipated to be moderate. While Project features are likely visible, development of the Project is not anticipated to significantly degrade the visual environment associated with the viewpoint.
- 2 - Moderate Impact: The viewpoint is typically located in an area of above average scenic quality and moderate visual sensitivity. Project features are located closer to the viewer in the middleground distance zone and contrast is anticipated to be moderate to strong. While Project features may be visible, development of the Project is not anticipated to significantly degrade the visual environment associated with the viewpoint.
- 3 - High Impact: The viewpoint is typically located in an area of above average scenic quality and high visual sensitivity. Project features are located closer to the viewer in the foreground and middleground distance zones and contrast is anticipated to be strong. Project features would be visible and obvious to viewers and development of the Project would likely degrade the visual environment associated with the viewpoint.

2.7.1 Representative Viewpoint 1 – McNary National Wildlife Refuge

Representative Viewpoint 1 is located along the Columbia River, 3 miles southeast of Burbank and 0.5 miles west of U.S. Route 12 within the National Wildlife Refuge. Visitors to the National Wildlife Refuge and travelers along the Columbia River and U.S. Route 12 have mostly open unobstructed views towards the Project. Existing power lines, shrubs, and trees are located within the foreground. The middleground includes views of the Columbia River, industrial areas, and some residential areas with tree cover. Existing Turbines and a cell tower can be seen in the background viewing distance, approximately 6.5 miles away.

2.7.2 Representative Viewpoint 2 – South Clodfelter Road

2.7.2.1 Representative Viewpoint 2a – South Clodfelter Road – East

Representative Viewpoint 2a is located on Manuel Drive just north of South Clodfelter Road, approximately 2.2 miles from I-82. Residents and travelers along South Clodfelter Road have mostly open unobstructed views towards the rolling hills. From within the residential neighborhood, views of the surrounding landscape are partially screened by residential development and associated landscape. Views toward the Project Lease Boundary are mainly limited to residences located along the southern perimeter of the neighborhood who have elevated unobstructed views to the south. The existing power lines along South Clodfelter Road are located within the foreground. The middleground includes views of large expanses of rolling agricultural fields. Existing Turbines can be seen in the background viewing distance, approximately 6.5 miles away.

2.7.2.2 *Representative Viewpoint 2b – South Clodfelter Road – Central*

Representative Viewpoint 2b is located on Manuel Drive just north of South Clodfelter Road, approximately 2.2 miles from I-82. Residents and travelers along South Clodfelter Road have mostly open unobstructed views towards the rolling hills. From within the residential neighborhood, views of the surrounding landscape are partially screened by residential development and associated landscape. Views toward the Project Lease Boundary are mainly limited to residences located along the southern perimeter of the neighborhood who have elevated unobstructed views to the south. The existing power lines along South Clodfelter Road are located within the foreground. The middleground includes views of large expanses of rolling agricultural fields.

2.7.2.3 *Representative Viewpoint 2c – South Clodfelter Road – West*

Representative Viewpoint 2c is located on Manuel Drive just north of South Clodfelter Road, approximately 2.2 miles from I-82. Residents and travelers along South Clodfelter Road have mostly open unobstructed views towards the rolling hills. From within the residential neighborhood, views of the surrounding landscape are partially screened by residential development and associated landscape. Views toward the Project Lease Boundary are mainly limited to residents located along the southern perimeter of the neighborhood who have elevated unobstructed views to the south. The existing power lines along South Clodfelter Road are located within the foreground. The middleground includes views of power lines, roads, residential areas, and transmission lines.

2.7.3 *Representative Viewpoint 3 – Chandler Butte*

Representative Viewpoint 3 is located on the east side of Chandler Butte on BLM land, just outside the gates leading to the communication towers. From this elevated viewpoint, recreationalists along Chandler Butte have mostly open unobstructed views of the agricultural fields below. In the existing conditions photography, clouds are shading a portion of the view (appears as a dark area on the ground). There are existing transmission lines in the foreground. Existing Turbines can be viewed in the background viewing distance, approximately 21.2 miles away.

2.7.4 *Representative Viewpoint 4*

2.7.4.1 *Representative Viewpoint 4a – Interstate 82 South (North)*

Representative Viewpoint 4a is located along I-82. I-82 runs north-south through this region and passes through urban development, agricultural, and natural landscape settings. Travelers along I-82 have mostly unobstructed views of the surrounding landscape. Existing fencing and scattered rural residential areas are located within the foreground and middleground.

2.7.4.2 *Representative Viewpoint 4b – Interstate 82 South (Northeast)*

Representative Viewpoint 4b is located along I-82. I-82 runs north-south through this region and passes through urban development, agricultural, and natural landscape settings. Travelers along I-82 have mostly unobstructed views of the surrounding landscape. Existing power lines,

fencing, and transmission lines are located within the foreground and middleground. Existing Turbines can be seen in the background viewing distance approximately 11.6 miles away.

2.7.5 Representative Viewpoint 5 – Badger Mountain

Representative Viewpoint 5 is located along the top of Badger Mountain trail with views in all directions. Recreationalists along this trail have mostly unobstructed elevated views towards the Project. Existing power lines, residential house development, and roads are located within the foreground and middleground in the valley below. Horse Heaven Hills can be seen in the middleground and background viewing distances.

2.7.6 Representative Viewpoint 6 –Bofer Canyon Road/Interstate 82

Representative Viewpoint 6 is located along Bofer Canyon Road, which parallels I-82. Bofer Canyon Road and I-82 run north-south through this region and pass through urban development, agricultural, and natural landscape settings. Travelers along I-82 and Bofer Canyon Road have mostly unobstructed views of the surrounding landscape. Existing power lines, fencing, and paved roads are located within the foreground and middleground. The existing power line extends into the background viewing distance.

2.7.7 Representative Viewpoint 7 – Highway 221

Representative Viewpoint 7 is located along Highway 221 on the west side of the Project. Highway 221 runs north-south through this region connecting the town of Prosser to the town of Paterson and Highway 14. This approximately 25-mile-long highway passes through mostly rural residential and agricultural settings. Travelers along Highway 221 and rural residences nearby have mostly unobstructed views of the surrounding landscape. Existing powerlines can be seen in the background.

2.7.8 Representative Viewpoint 8 – Kennewick (Canyon Lakes Area)

2.7.8.1 Representative Viewpoint 8a – Kennewick (Canyon Lakes Area – South)

Representative Viewpoint 8a is located at the southern end of S Olson Street where the sidewalk and street currently dead-end, approximately 1 mile southeast of Highway 395 in the Canyon Lakes residential area. Construction is occurring in this area with new houses being built to the southeast (left side of the photo frame; see Appendix A, Figure 11) behind the small berm. This is an elevated viewpoint with southern views facing towards the existing high-voltage BPA Franklin-Badger Canyon 115-kV transmission line conductors, electrical distribution and telecommunication poles and lines, and an underground natural gas pipeline within the foreground. In the middleground, existing wind turbines, multiple utility and telecommunication towers, and the high-voltage BPA McNary-Franklin 230-kV line can be viewed along the hillside. Views are primarily agricultural and natural settings with existing utilities scattered throughout the landscape. Residents at the top of the subdivision have mostly unobstructed extended views of the surrounding landscape. From within the residential neighborhood, views of the surrounding landscape are partially to mostly screened by residential development and associated landscape.

2.7.8.2 Representative Viewpoint 8b – Kennewick (Canyon Lakes Area – West)

Representative Viewpoint 8b is located at the southern end of S Olson Street where the sidewalk and street currently dead-end, approximately 1 mile southeast of Highway 395 in the Canyon Lakes residential area. Construction is occurring in this area with new houses being built to the southeast (left side of the photo frame, see Appendix A, Figure 12). This is an elevated viewpoint with western views facing towards the developed rural areas, roadways, telecommunication towers, and city views in the middleground/background. An existing high-voltage BPA Franklin-Badger Canyon 115-kV transmission line and an underground natural gas pipeline are located in the foreground/middleground. Views are primarily agricultural and rural settings with existing utilities and roadways scattered throughout the landscape. Residents at the top of the subdivision have mostly unobstructed, extended views of the surrounding landscape. From within the residential neighborhood, views of the surrounding landscape are partially to mostly screened by residential development and associated landscape.

2.7.9 Representative Viewpoint 9 – Benton City

Representative Viewpoint 9 is located in the city along Division Street/State Route 225, between Edith Avenue to the south and Ellen Avenue to the north, approximately 1 mile north of I-82. From this viewpoint, residents and travelers have views of the hills just outside of the city. Views are primarily commercial (in the city) and natural (outside of the city) settings with some views of travel ways. Residents and travelers have partially obstructed views of the surrounding landscape. Commercial businesses are within the foreground.

2.7.10 Representative Viewpoint 10 – Badger Road

Representative Viewpoint 10 is located along Badger Road, approximately 0.1-mile west of N 543 PR NE and approximately 1.5 miles southwest of I-82. The road is lined with rural residential housing dispersed with agricultural fields and hills beyond the housing. From this viewpoint, residents and travelers have views of mostly rural residential and agricultural settings. Travelers along the road and rural residences nearby have mostly unobstructed views of the surrounding agricultural landscape to the east and hills to the west that partially obstruct distant views. Existing powerlines are in the foreground view paralleling the road.

2.7.11 Representative Viewpoint 11 – Highland/Finley Area

Representative Viewpoint 11 is located along E Cougar Road just east of S Nine Canyon Road, in front of Finley Elementary School which divides the Highland and Finley rural residential areas. From the school and rural residential areas, residents have views of agricultural fields and orchards in the foreground/middleground, including hills to the south which include existing telecommunication towers and wind turbines in the middleground. Travelers along S Nine Canyon Road may have intermittent views of the surrounding landscape; however, some areas are obscured by foreground vegetation.

2.7.12 Representative Viewpoint 12 – County Well Road

Representative Viewpoint 12 is located along County Well Road, approximately 2 miles east of Highway 221. This area is primarily agricultural land with well-maintained roads and sporadic

housing. From this location, residents have views of agricultural fields in the foreground through middleground. Residents and travelers along County Well Road have mostly unobstructed views of the surrounding agricultural landscape. Existing high-voltage transmission lines and power distribution lines can be seen in the foreground.

2.7.13 Representative Viewpoint 13 – Travis Road South of Sellards Road

Representative Viewpoint 13 is located along Travis Road, approximately 0.1 mile south of Sellards Road. This area is primarily agricultural land with well-maintained roads and sporadic housing. From this location, residents have views of agricultural fields in the foreground through middleground. Residents and travelers along Travis Road and Sellards Road have mostly unobstructed views of the surrounding agricultural landscape. Existing homes, barns, and silos can be seen in the foreground/middleground in this agricultural setting, as well as distribution lines paralleling the roads. The Benton County Public Works Travis Quarry is located outside of the photo frame beyond the gravel piles (see Appendix A, Figure 17).

3.0 IMPACT ANALYSIS

Potential visual impacts were characterized by determining the level of visual contrast introduced by the Project. Existing landscape scenery is defined by the visual characteristics (form, line, color, and texture) associated with the landform (including water), vegetation, and existing facilities. The level of visual contrast introduced by a project can be measured by changes in the visual characteristics that would occur as a result of project implementation. The greater the difference between the character elements found within the existing landscape and with a proposed project, the more apparent the level of visual contrast. The following general criteria (BLM 1986b) were used when evaluating visual contrast:

- None—The element contrast is not visible or perceived.
- Weak—The element contrast can be seen but does not attract attention.
- Moderate—The element contrast begins to attract attention and begins to dominate the characteristic landscape.
- Strong—The element contrast demands attention, would not be overlooked, and is dominant in the landscape.

Other environmental factors that can influence the amount of visual contrast introduced by the components of a project include the following (BLM 1986b) although this is not a complete list:

- Distance—The contrast created by a project usually is less as viewing distance increases.
- Angle of Observation—The angle between the viewer's line-of-sight and a project's location. Angles of observation are typically described as inferior (in which viewers are situated at a lower elevation than the proposed project), level (as described above), and superior (in which viewers are situated at a higher elevation than the proposed project). Angle of observation influences the perception of visual contrast. Viewers at higher elevations (superior views) tend to see larger portions of a project.

- Length of Time the Facility is in View—If the viewer has only a brief glimpse of a project, the contrast may not be of great concern. If, however, a project is subject to view for a long period, as from an overlook, the contrast may be very significant.
- Relative Size or Scale—The level of visual contrast created by a project is directly related to its size and scale compared to the surrounding landscape in which it is located.
- Season of Use—The physical conditions that exist during the heaviest or most critical visitor use season, such as snow cover and tree defoliation during the winter, leaf color in the fall, and flowering in the spring.
- Lighting Conditions—The direction and angle of the sun affects the color, intensity, shadow, reflection, form, and texture of visual aspects of project components.
- Atmospheric Conditions—The visibility of projects due to atmospheric conditions such as air pollution, natural haze, fog, and precipitation, which could affect the visibility of an object.

This section presents the results of this Project-specific impact evaluation. The following subsections discuss the representative viewpoints, shadow flicker, nighttime view, construction impacts, operation impacts, and decommissioning impacts.

3.1 VISUAL EFFECTS FROM REPRESENTATIVE VIEWPOINTS

This section discusses potential impacts from construction of the Project at each of the representative viewpoints (Table 1; Figure 9). For each representative viewpoint, a brief introduction identifies the location and setting; the existing landscape conditions are described; and a discussion of how the Project would change the landscape is provided. Corresponding visual simulations are provided in Appendix A. The solar arrays were not based on the time of day the photograph was taken, but instead show maximum-impact (full-tilt) in the direction with the most visual impact.

3.1.1 Representative Viewpoint 1 – McNary National Wildlife Refuge

3.1.1.1 Turbine Layout Option 1

This representative viewpoint is located approximately 5.2 miles northeast of the nearest Option 1 Project Turbine in the background. Visitors to the McNary National Wildlife Refuge and travelers along the Columbia River and U.S. Route 12 would have primarily unobstructed views towards the Project Lease Boundary. From this area of the National Wildlife Refuge, the Project would not be screened by vegetation and/or development as the area is open in the foreground with rolling topography, sloping upwards in the middleground and background. Existing Turbines from the Nine Canyon Wind Project are present in the background. Proposed Turbines would be visible in the background, but would be approximately 1 mile closer to the viewpoint than the existing Nine Canyon Wind Project Turbines. Views of the proposed Turbines would be similar to the existing Turbines in form, line, and color. The texture and color are muted and less detailed due to distance, which helps to further reduce contrast. The proposed Turbines located nearer to this viewpoint than the existing Turbines would be more distinguishable and appear to contrast more in color and taller in form. As such, the Project would create moderate

visual contrast and would be a co-dominant feature in the landscape setting. Because visitors and travelers would be visiting for a limited time, the degree of contrast would be reduced by the short view duration. Views from local roads located 0.5 mile or more from the viewpoint would most likely be partially to completely screened by topography and/or vegetation and residential development. Portions of the Project that would be visible would appear as lines along the horizon and may be seen in the context of other human-made features such as the existing Turbines and power line (see Appendix A, Figure 1).

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.1.2 Turbine Layout Option 2

This representative viewpoint is located approximately 5.8 miles northeast of the nearest Option 2 Project Turbine in the background. The proposed Turbines in this option would be more distinct than the Turbines in Option 1; however, fewer Turbines would be seen, creating a less cluttered look along the horizon (Appendix A, Figure 1). The taller structures created by the proposed Turbines would attract attention but would be seen in the context of the existing Nine Canyon Wind Project Turbines. As such, the Project would create moderate visual contrast and would be a co-dominant feature in the landscape setting. Because visitors and travelers would be visiting for a limited time, the degree of contrast would be reduced by the short view duration.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.2 Representative Viewpoint 2a – South Clodfelter Road – East

3.1.2.1 Turbine Layout Option 1

This representative viewpoint is located approximately 3.9 miles north of the nearest Option 1 Project Turbine in the middleground. Residents and travelers along South Clodfelter Road would have partially unobstructed views towards the Project Lease Boundary. From this area along the road, the Project would not be screened by vegetation and/or development as the area is open, sloping downward, and flat. Turbines would be visible in the middleground. When looking towards the Project, proposed Turbines located east (left) of the existing Turbines would be comparable to the existing Turbines in similarity of form, line, and color, therefore reducing contrast (Appendix A, Figure 2). The texture and color would be muted and less detailed due to distance, which helps to further reduce contrast. The proposed Turbines located to the right of the existing Turbines would be approximately 2 miles closer, making them more distinguishable and appear to contrast more in color and taller in form. The darker color and taller structures created by the proposed Turbines would attract attention but would be seen in the context of the existing Turbines. Although the Project would attract attention due to its proximity to viewers, the Project would appear to be a co-dominant feature with other developments. As such, Option 1 would introduce moderate visual contrast for residents along South Clodfelter Road.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.2.2 Turbine Layout Option 2

This representative viewpoint is located approximately 4.8 miles north of the nearest Option 2 Project Turbine in the middleground. The proposed Turbines in this option would be more distinct than the Turbines in Option 1; however, fewer Turbines would be seen, creating a less cluttered look along the horizon (Appendix A, Figure 2). The taller structures of the proposed Turbines would attract attention but would be seen in the context of the existing Turbines. As such, Option 2 would introduce moderate visual contrast for residents along South Clodfelter Road.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.3 Representative Viewpoint 2b – South Clodfelter Road – Central

3.1.3.1 Turbine Layout Option 1

This representative viewpoint is located approximately 3 miles north of the nearest Option 1 Project Turbine in the middleground. Residents and travelers along South Clodfelter Road would have partially unobstructed views towards the Project Lease Boundary. From this area along the road, the Project would not be screened by vegetation and/or development as the area is open, rolling topography, sloping upwards. When looking towards the Project, proposed Turbines would contrast with the agricultural fields in form, line, and color, thereby increasing contrast (Appendix Q, Figure 3). The Turbines would attract attention on the horizon. The Project would attract attention due to its proximity to viewers from this viewpoint. As such, Option 1 would create a strong visual contrast for residents along South Clodfelter Road.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.3.2 Turbine Layout Option 2

This representative viewpoint is located approximately 3.5 miles north of the nearest Option 2 Project Turbine in the middleground. Option 2 Turbines are taller and therefore can be viewed more fully from this viewpoint, but because they are fewer in number, they appear less cluttered. When looking towards the Project, proposed Turbines contrast with the agricultural fields in form, line, and color, thereby increasing contrast (Appendix A, Figure 3). The Turbines would attract attention on the horizon. The Project would attract attention due to its proximity to viewers from this viewpoint. As such, Option 2 would create a strong visual contrast for residents along South Clodfelter Road.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.4 Representative Viewpoint 2c – South Clodfelter Road – West

3.1.4.1 Turbine Layout Option 1

This representative viewpoint is located approximately 3.7 miles east of the nearest Project Turbine in the middleground. Residents and travelers along South Clodfelter Road would have

partially unobstructed views towards the Project Lease Boundary. Views from this location would have partially obstructed views towards the Project Lease Boundary due to the existing human-made structures such as residential properties, fencing, and powerlines. When looking towards the Project, proposed Turbines can be seen over the horizon, particularly on the west side of the simulation (Appendix A, Figure 4). The vertical forms of the Turbines would contrast with the sky and surrounding vegetation and residential areas, would attract attention due to proximity to viewers, and the Project would appear as a co-dominant feature with other development. As such, Option 1 would introduce moderate visual contrast for residents along South Clodfelter Road.

The closest potential transmission line to this representative viewpoint is approximately 3.4 miles away in the middleground. The transmission line would be indiscernible to viewers along the road given the low horizontal angle of the lines which would be mostly hidden by existing homes. Some homes closer to the transmission line would have more distinctive views, giving this a weak contrast.

The solar arrays and substations/BESS would not be visible from this location.

3.1.4.2 Turbine Layout Option 2

This representative viewpoint is located approximately 3.7 miles east of the nearest Project Turbine in the middleground. Option 2 Turbines are taller and therefore would be viewed more fully from this viewpoint, but because they are fewer in number, they appear less cluttered. The Turbines would draw attention to the horizon; however, the Project would appear as a co-dominant feature with other development (Appendix A, Figure 4). As such, Option 2 would introduce moderate visual contrast for residents along South Clodfelter Road.

Views of the transmission line would be the same under Turbine Layout Option 2 as described above for Turbine Layout Option 1. The solar arrays and substations/BESS would not be visible from this location.

3.1.5 Representative Viewpoint 3 – Chandler Butte

3.1.5.1 Turbine Layout Option 1

This representative viewpoint is located approximately 2.5 miles away from the nearest potential Turbine. The proposed Turbines would be visible in the middleground. Because of the elevated viewing position, these Turbines would be seen against the ground surface backdrop. The Turbines are unobstructed and, at this elevated viewing position, would be visible to recreationists along Chandler Butte. The contrast between the light color of the Turbines in Option 1 and the darker color of the ground would create a strong visual contrast, increasing the visibility of the Turbines.

The closest potential solar array to this representative viewpoint is the western array on County Well Road, which is approximately 2.1 miles away in the middleground. Because of the elevated viewing position, this solar array would be seen against the ground surface backdrop. In the photograph of existing conditions, clouds are shading a portion of the view (dark area on the ground) and are closer in color to the solar arrays than the golden yellow grass (see Appendix

A, Figure 5). The solar arrays are unobstructed and at this elevated viewing position would be visible to recreationists along Chandler Butte. The solar arrays would be seen in contrast to the existing landscape due to their dark color against the golden color of the landscape. As such, the Project would introduce moderate contrast to this representative viewpoint.

The closest potential transmission line to this representative viewpoint is approximately 4.2 miles away in the middleground. The transmission line would be indiscernible among the Turbines due to the shorter, narrower poles that appear to blend in more with the environment compared to the stark white contrast of the Turbines, giving this a weak contrast.

The substations/BESS would be visible from this location; however, views are outside of the photo frame within 1.5 miles of the viewpoint. It is anticipated that these components will be similar to the solar array's contrast discussed above.

3.1.5.2 Turbine Layout Option 2

This representative viewpoint is located approximately 2.8 miles away from the nearest potential Turbine in the middleground. Option 2 Turbines appear more spread out in this representative viewpoint. The contrast between the light color of the Turbines in Option 2 and the darker color of the ground would create a strong visual contrast, increasing the visibility of the Turbines (Appendix A, Figure 5).

Visibility of the solar arrays and transmission line would be as discussed under Turbine Layout Option 1. The substations/BESS would be visible from this location; however, views are outside of the photo frame within 1.5 miles of the viewpoint. It is anticipated that these components will be similar to the solar array's contrast discussed above.

3.1.6 Representative Viewpoint 4a – Interstate 82 South (North)

3.1.6.1 Turbine Layout Option 1

This representative viewpoint is located approximately 7.3 miles away from the nearest potential wind Turbine in the background. Travelers along I-82 would have primarily open unobstructed views of the rolling agriculture fields towards the Project Lease Boundary. From along this segment of I-82, the Project Turbines would introduce vertical structures; however, only the upper portions of the Turbines would be visible with the sky as a backdrop, reducing contrast for form, line, and color (Appendix A, Figure 6). At this distance, the form of the Turbines would be distinguishable, but the texture and color would be muted and less detailed due to distance, which helps to further reduce contrast. Portions of the Project that would be visible would also be seen in the context of other human-made features such as fencing and scattered rural residential properties. Due to the distance of the viewer from the Project and the existing human-made modifications visible in the immediate foreground, the Project may attract attention but would appear to be a subordinate feature. As such, Option 1 would introduce moderate visual contrast. These impacts would be short term because travelers would only be approaching the Project Lease Boundary for a limited time and their focus would be on the road.

The closest potential transmission line to this representative viewpoint would be approximately 6.5 miles away in the background. The transmission line would be indiscernible to viewers

along the road given the low horizontal angle of the lines which would be mostly muted against the hillsides. From this distance, the transmission line would introduce weak contrast.

The solar arrays and substations/BESS would not be visible from this viewpoint.

3.1.6.2 Turbine Layout Option 2

This representative viewpoint is located approximately 7.3 miles away from the nearest potential Turbine in the background. Option 2 would introduce taller Turbines so more of the Turbine would be seen in this viewpoint (Appendix A, Figure 6). Due to the distance of the viewer from the Project and the existing human-made modifications visible in the immediate foreground, the Project may attract attention but would appear to be a subordinate feature. The contrast of Option 2 would introduce moderate contrast.

Transmission line visibility would be the same under Option 2 as described above for Option 1. The solar array and substations/BESS would not be visible from this viewpoint.

3.1.7 Representative Viewpoint 4b – Interstate 82 South (Northeast)

3.1.7.1 Turbine Layout Option 1

This representative viewpoint is located approximately 7.0 miles away from the nearest potential Turbine in the background. Travelers along I-82 would have primarily open unobstructed views of the rolling agriculture fields towards the Project Lease Boundary. Although the tall vertical forms would contrast with the lighter color of the sky, the Project would be seen in the context of human-made modifications, including fencing in the immediate foreground and transmission lines and existing Turbines in the background, approximately 11.6 miles away. When looking towards the Project, proposed Turbine blades would be seen over the horizon. Because the vertical forms of the Turbines would contrast with the sky and surrounding vegetation, the Project would attract attention, and the Project would appear as a co-dominant feature with existing Turbines and power lines. As such, Option 1 would introduce moderate visual contrast.

The closest potential solar arrays to this representative viewpoint are at Bofer Canyon, which is approximately 6 miles away in the background. The substation (HH-East)/BESS are approximately 7.3 miles away in the background. These solar arrays, substation, and BESS would be seen against the ground along the horizon. The solar arrays would be seen in contrast to the existing landscape due to their dark color against the golden, green, and gray colors of the landscape (Appendix A, Figure 7). As such, the Project would introduce moderate contrast to this representative viewpoint. However, these impacts would be short term because travelers would only be approaching the Project Lease Boundary for a limited time and their focus would be on the road ahead.

The closest potential transmission line to this representative viewpoint is approximately 6.5 miles away in the background. The transmission line would be indiscernible to viewers along the road given the low horizontal angle of the lines, which are mostly muted against the hillsides. From this distance, the transmission line would introduce weak contrast.

3.1.7.2 Turbine Layout Option 2

This representative viewpoint is located approximately 7.3 miles away from the nearest potential Turbine in the background. Option 2 Turbines are fewer in number but taller than Option 1 Turbines; therefore, more of the Turbine can be seen (blades and a portion of the tower). Because the vertical forms of the Turbines would contrast with the sky and surrounding vegetation, the Project would attract attention, and the Project would appear as a co-dominant feature with existing Turbines and power lines. As such, Option 2 would introduce moderate visual contrast.

Views of solar arrays, substation, BESS, and transmission lines would be the same under either Turbine Layout Option 1 or Turbine Layout Option 2.

3.1.8 Representative Viewpoint 5 – Badger Mountain

3.1.8.1 Turbine Layout Option 1

This representative viewpoint is located approximately 4.7 miles away from the nearest potential Turbine in the middleground. Recreationalists on Badger Mountain would have open unobstructed views of the rolling agricultural fields, residential homes, and rolling hills towards the Project Lease Boundary. Due to the unobstructed views, the Turbines in the middleground would contrast with the lighter color sky, making it a strong contrast with the surrounding area depending on the lighting (Appendix A, Figure 8). On a light hazy day, the Project may attract attention. At this distance, the form of the Turbines is distinguishable; however, the texture and color are muted and less detailed due to distance, which helps to further reduce contrast. Due to the distance of the Project from this viewpoint, it would also be seen in the context of the surrounding features. On a foggy day, the Turbines would appear muted and less detailed against the backdrop, and therefore the contrast would be reduced. In this lighting, the form, line, and color of the Turbines would be less distinguishable.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.8.2 Turbine Layout Option 2

This representative viewpoint is located approximately 4.7 miles away from the nearest potential Turbine in the middleground. Option 2 Turbines would appear taller and fewer in number. At this distance, the form of the Turbines is distinguishable; however, the texture and color are muted and less detailed, which helps to further reduce contrast. Due to the distance of the Project from this viewpoint, it would also be seen in the context of the surrounding features. On a foggy day, the Turbines would appear muted and less detailed against the backdrop, and therefore the contrast would be reduced. In this lighting, the form, line, and color of the Turbines would be less distinguishable.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.9 Representative Viewpoint 6 – Bofer Canyon Road/Interstate 82

3.1.9.1 Turbine Layout Option 1

This representative viewpoint is located approximately 1.7 miles away from the nearest potential Turbine in the middleground. Travelers along Bofer Canyon Road would have primarily open unobstructed views of the rolling agriculture fields towards the Project Lease Boundary. The Project would be seen to the east while heading north on the road. At this distance, the form of the Turbines is distinguishable as they rise above the rolling terrain. Portions of the Project that are visible would also be seen in the context of other human-made features, such as the existing BPA power transmission lines which present a vertical line across the area (Appendix A, Figure 9). Because the Turbines are less than 2 miles from this representative viewpoint, the Project would attract attention but would appear to be a co-dominant feature with the existing power lines. However, because there are more Turbines in this view, they would attract attention and therefore Option 1 would introduce strong visual contrast.

The closest potential solar arrays to this representative viewpoint are in Solar East at Bofer Canyon, which is approximately 0.6 mile away in the middleground. The Project solar arrays would be seen on the east and west side of Bofer Canyon Road and I-82 heading north through the Project Lease Boundary. These solar arrays would draw attention to the Project due to being darker in color, which contrasts from the golden color of the fields in surrounding area. Due to the panels being simulated at full tilt facing west, representing a maximum-impact afternoon view, the solar arrays on the left would appear gray in color and the solar arrays on the right would appear dark gray in color. A morning view would show the solar arrays on the left appearing dark gray in color and the solar arrays on the right appearing gray in color. As such, the Project would introduce moderate contrast to the area. However, these impacts would be short term because travelers would only be approaching the Project Lease Boundary for a limited time and their focus would be on the road ahead. The substation (HH-East)/BESS also would be visible from this viewpoint; however, it is outside of the photo frame. These components would be similar contrast to the solar arrays discussed above.

The closest potential transmission line to this representative viewpoint is approximately 1.2 miles away in the middleground. Views of the transmission line would be discernible to viewers along the road because of the close proximity of the horizontal wires and vertical poles that rise above the horizon. From this distance, the transmission line would introduce moderate contrast.

3.1.9.2 Turbine Layout Option 2

This representative viewpoint is located approximately 1.8 miles away from the nearest potential wind Turbine in the middleground. Option 2 Turbines would appear taller and fewer in number. At this distance, the form of the Turbines is distinguishable. Portions of the Project that are visible would also be seen in the context of other human-made features such as the power lines which present a horizontal line across the area. The Project would attract attention but would appear to be a co-dominant feature with the existing power lines. However, due to the distance and extent of Turbines, Option 2 would introduce strong visual contrast.

Visibility of the solar arrays, transmission lines, and substations/BESS would be the same under Turbine Layout Option 2 as described above for Turbine Layout Option 1.

3.1.10 Representative Viewpoint 7 – Highway 221

3.1.10.1 Turbine Layout Option 1

This representative viewpoint is located approximately 5.8 miles away from the nearest potential Turbine in the background. Travelers along Highway 221 and rural residences in the area would have primarily open unobstructed views of the rolling agriculture fields towards the Project Lease Boundary. The Project Turbines would be seen to the east heading north along the highway. Although the tall vertical forms contrast with the lighter color of the sky, the Turbines would be seen in the context of human-made modifications, including powerlines and transmission lines in the background. Due to the distance and existing transmission lines on the horizon, the Turbines would present a moderate contrast. From this viewpoint, the proposed transmission line would be visible, but the vertical lines would be seen in the context of the Turbines. The Sellards Road substation/BESS and transmission line would be visible from this viewpoint.

The closest potential solar arrays to this representative viewpoint would be in Solar West 2 (Sellards Road), which is approximately 3.1 miles away in the middleground. The solar arrays, alone, likely would not draw attention because they are low to the ground. Although they would be dark in color and along the horizon, they follow the form of the landscape. Due to the angle of the sun at the time of day represented in the photograph, the solar arrays on the left in the simulation (Appendix A, Figure 10) appear gray in color and the solar arrays on the right appear dark gray in color and these shades of gray would likely vary throughout the day. In the existing conditions photography, a faint horizontal line of haze appears along the horizon. The solar array would create some contrast, particularly on days when the haze is visible. As such, the Project would introduce moderate visual contrast to the area. However, these impacts would be short term because travelers would only be approaching the Project Lease Boundary for a limited time and their focus would be on the road ahead. The substation (HH-West)/BESS also would be visible from this viewpoint.

The closest potential transmission line to this representative viewpoint would be approximately 2.2 miles away in the middleground. In the simulation (Appendix A, Figure 10), a faint horizontal line of haze appears along the horizon and the transmission line, although darker where the poles appear to be stacked on each other, appears within that hazy area creating less contrast. The transmission line would be seen by viewers along the road given the low dark vertical angle of the poles but would not attract attention. From this distance, the transmission line would introduce weak contrast.

3.1.10.2 Turbine Layout Option 2

This representative viewpoint is located approximately 5.8 miles away from the nearest potential Turbine in the background. Option 2 Turbines would appear taller and fewer in number. At this distance, the form of the Turbines is more distinguishable than in Option 1; however, the Turbines are in the background at this viewpoint. Although the tall vertical forms contrast with the lighter color of the sky, the Turbines would be seen in the context of other human-made features such as the power lines that present a horizontal line across the area, and structures on

the horizon. The Project would attract attention but would appear to be a co-dominant feature with the existing power lines. As such, Option 2 would introduce moderate visual contrast.

The solar arrays, transmission lines, and substations/BESS would have the same visibility under Turbine Layout Option 2 as described above for Turbine Layout Option 1.

3.1.11 Representative Viewpoint 8a – Kennewick (Canyon Lakes Area) – South

3.1.11.1 Turbine Layout Option 1

This representative viewpoint is located approximately 3.6 miles north from the nearest potential Option 1 Turbine in the middleground. Suburban residences located on the periphery of the neighborhood would have primarily open unobstructed views of rolling hills south towards the Project Lease Boundary, with existing electrical distribution and transmission lines in the foreground and existing wind turbines to the southeast in the middleground. From this location, the Project would not be screened by vegetation; however, views from other residential homes surrounded by residential development will mostly be screened by existing development. The Project Turbines would be seen to the south, and would contrast with the rolling hills and open sky in form, line, and color, thereby increasing contrast (Appendix A, Figure 11). The Turbines would attract attention on the horizon due to their proximity to viewers from this viewpoint. Though the Project Turbines would be comparable to the existing turbines in form, line, and color, their closer proximity, size, and extent across the horizon would make them a more dominant feature on the landscape. As such, Option 1 would create a strong visual contrast for residents located on the outside extent of the neighborhood towards the top of the hill in Kennewick's Canyon Lakes Area.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.11.2 Turbine Layout Option 2

This representative viewpoint is located approximately 5.4 miles north of the nearest Option 2 Turbine in the background. Option 2 Turbines are taller; however, they would be at a greater distance and therefore they would appear similar in height to the Option 1 Turbines. Because they are fewer in number, they appear less concentrated. When looking towards the Project, proposed Turbines contrast with the rolling hills and open sky in form, line, and color, thereby increasing contrast (Appendix A, Figure 11). The Turbines would attract attention due to their proximity to viewers from this viewpoint. Though the Project Turbines would be comparable to the existing turbines in form, line, and color, their closer proximity, size, and extent across the horizon would make them a more dominant feature on the landscape. As such, Option 2 would create a strong visual contrast for residents located on the periphery of the neighborhood in Kennewick's Canyon Lakes Area.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.12 Representative Viewpoint 8b – Kennewick (Canyon Lakes Area) – West

3.1.12.1 Turbine Layout Option 1

This representative viewpoint is located approximately 8.8 miles east from the nearest potential Option 1 Turbine in the background. Suburban residences located on the periphery of the neighborhood would have primarily open unobstructed views of rolling hills and rural development towards the Project Lease Boundary, with the existing electrical distribution and transmission lines in the foreground. When looking west towards the Project, proposed Turbines can be seen on the horizon (Appendix A, Figure 12). The vertical forms of the Turbines would contrast with the sky and low hills, would attract attention due to proximity to viewers, and the Project would appear as a co-dominant feature with other electrical and residential development. As such, Option 1 would introduce moderate visual contrast for residents located on the periphery of the neighborhood facing west from Kennewick's Canyon Lakes Area.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.12.2 Turbine Layout Option 2

This representative viewpoint is located approximately 8.8 miles east from the nearest Option 2 Turbine in the background. Option 2 Turbines are taller and therefore would be viewed more fully from this viewpoint. The Turbines would draw attention to the horizon; however, the Project would appear as a co-dominant feature with other development (Appendix A, Figure 12). As such, Option 2 would introduce moderate visual contrast for residents located on the periphery of the neighborhood facing west from Kennewick's Canyon Lakes Area.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.13 Representative Viewpoint 9 – Benton City

3.1.13.1 Turbine Layout Option 1

This representative viewpoint is located approximately 2.7 miles away from the nearest potential Turbine. A few of the proposed Turbines would be visible in the middleground (Appendix A, Figure 13). Turbines would be partially screened by topography, as well as existing vegetation and development in town. For the two Turbines primarily visible on the horizon, the vertical forms would contrast with the sky and hill slope, and would attract attention due to proximity to viewers. However, the Project would appear as a co-dominant feature with other commercial and residential development. On a gray, cloudy day, the Turbines would appear muted and less detailed against the backdrop, and therefore the contrast would be reduced. As such, Option 1 would introduce moderate visual contrast for viewers from this location in Benton City.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.13.2 Turbine Layout Option 2

This representative viewpoint is located approximately 2.7 miles away from the nearest potential Option 2 Turbine. A few of the proposed Turbines would be visible in the middleground Appendix A, (Figure 13). Turbines would be partially screened by topography, as well as existing vegetation and development in town. Option 2 Turbines are taller and therefore would be viewed more clearly from this viewpoint. For the two Turbines primarily visible on the horizon, the vertical forms and color would contrast with the sky and hill slope, and would attract attention due to proximity to viewers. However, the Project would still appear as a co-dominant feature with other commercial and residential development. On a gray, cloudy day, the Turbines would appear muted and less detailed against the backdrop, and therefore the contrast would be reduced. As such, Option 2 would introduce moderate visual contrast for viewers from this location in Benton City.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.14 Representative Viewpoint 10 – Badger Road

3.1.14.1 Turbine Layout Option 1

This representative viewpoint is located approximately 1.5 miles away from the nearest potential Turbine in the middleground. Travelers along Badger Road and surrounding residences would have partially obstructed views towards the Project Lease Boundary from existing topography, vegetation, and development. The Turbines are clearly distinguishable as they rise above the intervening line of hills (Appendix A, Figure 14). The vertical forms and color contrast with the sky and hill slopes, and would attract attention due to proximity to viewers and extent across the horizon that begins to dominate the view. While the viewer sensitivity may remain moderate for travelers focused away from the Project passing through for a limited time on the roadway, nearby residents would have a higher viewer sensitivity. Option 1 would create a strong visual contrast from this viewpoint.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.14.2 Turbine Layout Option 2

This representative viewpoint is located approximately 1.5 miles away from the nearest potential Option 2 Turbine. Option 2 Turbines are taller and therefore would be viewed more fully from this viewpoint. The Turbines are prominent as they rise above the intervening line of hills (Appendix A, Figure 14). The vertical forms and color contrast with the sky and hill slopes, and would attract attention due to proximity to viewers and extent across the horizon that begins to dominate the view. While the viewer sensitivity may be reduced for travelers focused away from the Project passing through for a limited time on the roadway, nearby residents would have a higher viewer sensitivity. Option 2 would create a strong visual contrast from this viewpoint.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.15 Representative Viewpoint 11 – Highland/Finley Area

This representative viewpoint focuses on visible Project components seen to the southeast of the viewing location. When facing southwest, the existing Nine Canyon Wind Farm is visible in the background, but no proposed Project facilities would be visible in that direction.

3.1.15.1 Turbine Layout Option 1

This representative viewpoint is located approximately 2 miles away from the nearest potential Turbine in the middleground. Residences in the area and viewers at Finley Elementary School would have primarily open unobstructed views of agricultural fields, low vegetation, and rolling hills to the southeast towards the Project Lease Boundary, with existing wind turbines toward the right side of the view in the background. From this location, the Project would not be screened by vegetation or development. The Project Turbines would contrast with the landscape in form, line, and color, thereby increasing contrast (Appendix A, Figure 15). The Turbines would attract attention on the horizon due to their proximity to viewers from this viewpoint. Though the Project Turbines would be comparable to the existing turbines in form, line, and color, their closer proximity, size, and extent across the horizon would make them a more dominant feature on the landscape. As such, Option 1 would create a strong visual contrast from this viewpoint.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.15.2 Turbine Layout Option 2

This representative viewpoint is located approximately 2.5 miles north of the nearest Option 2 Turbine in the middleground. Option 2 Turbines are taller and therefore can be viewed more fully from this viewpoint; however, because they are fewer in number, they appear less concentrated. When looking towards the Project to the southeast, proposed Turbines contrast with the landscape in form, line, and color, thereby increasing contrast (Appendix A, Figure 15). The Turbines would attract attention due to their proximity to viewers from this viewpoint. Though the Project Turbines would be comparable to the existing turbines in form, line, and color, their closer proximity, size, and extent across the horizon would make them a more dominant feature on the landscape. As such, Option 2 would create a strong visual contrast from this viewpoint.

The solar arrays, transmission lines, and substations/BESS would not be visible from this location.

3.1.16 Representative Viewpoint 12 – County Well Road

3.1.16.1 Turbine Layout Option 1

This representative viewpoint is located approximately 2.5 miles away from the nearest potential Turbine in the middleground. Travelers along County Well Road and scattered rural residences would have unobstructed views of existing agricultural fields towards the Project Lease Boundary, with an existing transmission line in the foreground. The Turbines can be seen across the horizon, and the vertical forms would contrast with the sky and fields, though the intervening existing transmission line reduces the potential contrast. The Turbines would attract attention due to proximity to viewers, though they would appear as a co-dominant feature with other

electrical development. As such, the Option 1 Turbines would introduce moderate visual contrast for travelers and potential nearby residents from this viewpoint.

The Project solar arrays, BESS, transmission line, and HH-West Step-up Substation 500-kV (Alternate – County Well Road) would be visible in the foreground from this viewpoint (Appendix A, Figure 16). The solar arrays would create a dark line low on the horizon, contrasting with the existing tan-colored agricultural fields. The Project transmission line would be perpendicular to the existing transmission line, with contrasting color and shape. The BESS and substation add additional structural elements with greater mass than any existing shapes in view. Collectively, the solar arrays, transmission line, BESS, and substation would attract attention and begin to dominate the landscape. As such, the Project would introduce a strong visual contrast from this viewpoint.

3.1.16.2 Turbine Layout Option 2

This representative viewpoint is located approximately 2.5 miles away from the nearest potential Option 2 Turbine in the middleground. Option 2 Turbines are taller and therefore can be viewed more fully from this viewpoint, and the color contrast appears stronger, though the intervening existing transmission line still reduces the overall contrast. The Turbines would attract attention due to proximity to viewers, though would appear as a co-dominant feature with other electrical development. As such, the Option 2 Turbines would introduce moderate visual contrast for travelers and potential nearby residents from this viewpoint (Appendix A, Figure 16).

Visibility of the solar arrays, transmission lines, and substations/BESS would be the same under Turbine Layout Option 2 as described above for Turbine Layout Option 1.

3.1.17 Representative Viewpoint 13 – Travis Road South of Sellards Road

3.1.17.1 Turbine Layout Option 1

This representative viewpoint is located approximately 1.1 miles away from the nearest potential Turbine in the middleground, and 0.1 mile away from the nearest Project transmission line in the foreground. Travelers along Travis Road and scattered rural residences would have unobstructed views of existing agricultural fields and limited associated structures in the direction of the Project Lease Boundary. From this location, the Project would not be screened by vegetation or development. The Turbines and Project transmission line would contrast with the existing landscape in form, line, and color (Appendix A, Figure 17). Both the middleground Turbines and foreground transmission line would attract attention on the horizon due to their proximity to viewers from this viewpoint, as well as the perpendicular transmission line crossing of Travis Road. Additional Project transmission lines would be visible in the background. Project features begin to dominate the landscape. As such, Option 1 would create a strong visual contrast from this viewpoint.

The substations/BESS would not be visible from this location. The solar arrays would be partially visible from this location but outside of the photo frame.

3.1.17.2 Turbine Layout Option 2

This representative viewpoint is located approximately 1.1 miles away from the nearest potential Option 2 Turbine in the middleground, and 0.1 mile away from the nearest Project transmission line in the foreground. Option 2 Turbines are taller and therefore can be viewed more fully from this viewpoint, and the color contrast appears stronger. The Project transmission lines would introduce the same level of visibility as discussed above for Turbine Layout Option 1. As such, Option 2 would create a strong visual contrast from this viewpoint (Appendix A, Figure 17).

The substations/BESS would not be visible from this location. The solar arrays would be partially visible from this location but outside of the photo frame.

Table 2 includes a summary of the proposed Project visual impacts as discussed above.

Table 2. Summary of Existing Scenic Quality and Proposed Project Visual Impacts

Representative Viewpoint	Existing Scenic Quality		Contrast Rating (overall rating in bold)	Distance Zone ^{2/}	Overall Visual Impact Rating ^{4/}
	Visual Quality ^{1/}	Viewer Sensitivity			
1	Class B	Moderate	Moderate (Turbines)/None (Solar Arrays)/None (Transmission Line)	Background (Turbines)	Low to Moderate
2a ^{3/}	Class B	High	Moderate (Turbines)/None (Solar Arrays)/None (Transmission Line)	Middleground (Turbines)	Moderate to High
2b ^{3/}	Class B	High	Strong (Turbines)/None (Solar Arrays)/None (Transmission Line)	Middleground (Turbines)	Moderate to High
2c ^{3/}	Class B	High	Moderate (Turbines)/None (Solar Arrays)/Weak (Transmission Line)	Middleground (Turbines/Transmission Line)	Moderate to High
3	Class B	High	Strong (Turbines)/Moderate (Solar Arrays/Substation/BESS)/Weak (Transmission Line)	Middleground (Turbines/Solar Arrays/Transmission Line)	Moderate to High
4a ^{3/}	Class C	Low	Moderate (Turbines)/None (Solar Arrays)/Weak (Transmission Line)	Background (Turbines/Transmission Lines)	Low to Moderate
4b ^{3/}	Class C	Low	Moderate (Turbines)/Moderate (Solar Arrays/Substation/BESS)/Weak (Transmission Line)	Background (Turbines/Solar Arrays/Transmission Line)	Low to Moderate
5	Class B	High	Strong (Turbines)/None (Solar Arrays)/None (Transmission Line)	Middleground (Turbines)	Moderate to High
6	Class C	Moderate	Strong (Turbines)/Moderate (Solar Arrays/Substation/BESS)/Moderate (Transmission Line)	Middleground (Turbines/Solar Arrays/Transmission Line)	Moderate
7	Class C	Moderate	Moderate (Turbines)/Moderate (Solar Arrays)/Weak (Transmission Line)	Middleground/Background (Turbines)/Middleground (Solar Arrays/Transmission Line)	Low to Moderate
8a ^{3/}	Class C	High	Strong (Turbines)/None (Solar Arrays)/None (Transmission Line)	Middleground/Background (Turbines), Background (Solar Arrays/Transmission Line)	Moderate to High
8b ^{3/}	Class C	High	Moderate (Turbines)/None (Solar Arrays)/None (Transmission Line)	Background (Turbines/Solar Arrays/Transmission Line)	Low to Moderate
9	Class C	Moderate	Moderate (Turbines)/None (Solar Arrays)/None (Transmission Line)	Middleground (Turbines/Solar Arrays), Background (Transmission Line)	Low to Moderate
10	Class B	High	Strong (Turbines)/None (Solar Arrays)/None (Transmission Line)	Middleground (Turbines/Transmission Line), Background (Solar Arrays)	Moderate to High
11	Class B	High	Strong (Turbines)/None (Solar Arrays)/None (Transmission Line)	Middleground (Turbines), Background (Solar Arrays, Transmission Line)	Moderate to High

Representative Viewpoint	Existing Scenic Quality		Contrast Rating (overall rating in bold)	Distance Zone ^{2/}	Overall Visual Impact Rating ^{4/}
	Visual Quality ^{1/}	Viewer Sensitivity			
12	Class C	Moderate	Moderate (Turbines)/ Strong (Solar Arrays/Substation/BESS)/ Strong (Transmission Line)	Middleground (Turbines), Foreground (Solar Arrays, Transmission Line)	Moderate to High
13	Class C	Moderate	Strong (Turbines, Transmission Line, Solar Arrays)	Middleground (Turbines/Solar Arrays), Foreground (Transmission Line)	Moderate to High

Notes:

- 1/ Overall Scenic Quality Rating: Class A – Unique; Class B – Above Average; Class C – Common.
- 2/ Middleground distance zone (0.5-5 miles); Background distance zone (5-15 miles).
- 3/ Representative Viewpoints 2a/2b/2c are the same inventory point; similarly, viewpoints 4a/4b and 8a/8b are the same inventory point.
- 4/ Impact rating is a range taking the average of visual quality, viewer sensitivity, distance zone, and contrast rating, e.g., 3=strong/high/Class A, 2=moderate/Class B, 1=weak/low Class C.

3.2 SHADOW FLICKER

A Turbine’s moving blades can cast a moving shadow on locations within a certain distance of a Turbine. These moving shadows can create a temporary phenomenon experienced at nearby residences called shadow flicker. The Applicant assessed shadow flicker impacts from Turbines of the Project on nearby sensitive receptors (i.e., residences) using the WindPro software package (see Appendix G of the ASC). A total of 742 structures were identified as occupied or potentially occupied residences within approximately 1.2 miles of the Project Lease Boundary and considered to be potential shadow flicker receptors for the purpose of the analysis. To allow flexibility in the choice of Turbines at the time of construction, this study analyzed impacts using four different Turbine models across two different Turbine layouts that are under consideration for the Project (see Table 2.3-1 of the ASC).

Shadow flicker impacts are not regulated in applicable state or federal law, nor are they addressed by the local county ordinances. Therefore, potential shadow flicker impacts were assessed against the widely used industry standard threshold of 30 hours per year. Of the 742 receptors analyzed in the study, 7 were predicted to experience more than 30 hours of shadow flicker per year. However, all 7 receptors have been identified as Project participants. The analysis was deliberately conservative to account for potential variations in environmental conditions, and actual shadow flicker is expected to occur for less than the modeled durations. The analysis assumed that the receptors all have a direct in-line view of the incoming shadow flicker sunlight, and 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 calculated shadow flicker impact times. Shadow flicker is not expected to be a significant environmental impact for the Project. Details of the study, including expected shadow flicker impacts at all receptors and figures showing shadow flicker impact areas, can be found in Appendix G of the ASC.

3.3 NIGHTTIME VIEW

Flashing red aviation lighting would be mounted on Turbine nacelles as required by the FAA. The red lights may be visible at night up to 10 to 35 miles, assuming no intervening topography

or vegetation and in clear weather, with decreasing contrast at further distances. The FAA lights would introduce visual contrast to the landscape during nighttime hours. Once the Turbines for the Project have been constructed, there would potentially be up to approximately 50 flashing red lights within the Project Lease Boundary (depending on the final layout and lighting design as approved by FAA), located on the Turbine nacelles approximately 266 to 411 feet above the ground (depending on the hub height of the final Turbine model selected). Turbines exceeding 499 feet will be required by FAA to have dual flashing lights placed on the nacelle (one on each side). These lights would simultaneously flash 20 to 40 times per minute, or another configuration as approved by the FAA. The solar arrays would not have any nighttime lighting.

FAA lights associated with the Project would introduce a horizontal cluster of flashing lights into a rural landscape that is relatively dark at night and would therefore introduce a greater degree of contrast than the existing lights. In addition, the height of the FAA lights would allow them to be seen from locations more than 25 miles away. Although the FAA lights can potentially be visible from great distances, the actual intensity of the lighting may appear no greater than other sources of nighttime lighting within and near the Project Lease Boundary, including dual blinking red lights associated with communication towers, vehicle head and taillights and some small-scale exterior lighting around residences and outbuildings, as well as nighttime lighting associated with the existing Nine Canyon Wind Project.

Based on the 2013 study prepared for the BLM (Sullivan et al. 2013), FAA lights were noted as being visible at 36.2 miles. It is anticipated that locations within the visual study areas that have potential views of Turbine nacelles during day would also have potential views of the FAA lights at night. It is anticipated that all or most of the FAA lights would be visible from travel routes and residences in and near the Project Lease Boundary that have unobstructed views toward the Project. For travelers along local and major travel ways, the duration of visibility would be short term because travelers would only be approaching and parallel to the Project for a limited time and their focus would be on the road ahead. In some instances, such as from roads located within the background or seldom seen distance zones, intervening terrain, vegetation, and/or structures may partially or completely screen the Project. Strong contrast is anticipated for residential viewers within the foreground/midground distance zone who have unobstructed to partially screened views towards the Project where the synchronized flashing lights would draw attention and dominate the nighttime setting. The contrast is anticipated to be reduced for residential viewers located farther from the Project Lease Boundary. Regardless of the number of FAA lights visible, any lighting is more likely to be seen or noticeable from outside areas surrounding residences rather than within the residences, as lights within residential homes tend to reflect and mirror views in windows, or views outside are obscured by curtains or blinds.

3.4 CONSTRUCTION IMPACTS

During construction, short-term visual effects would result from construction activities and the presence of equipment and work crews. Visual contrast introduced during Project construction would be evident primarily for local residents and travelers adjacent to the Project Lease Boundary, mostly along I-82/U.S. Highway 395 and other local roads, where the presence of construction equipment, materials, and crews would be prominent in the foreground. Views of Project construction from areas not immediately adjacent to the Project Lease Boundary would

be partially screened by topography. Visual effects that occur as a result of construction activities would be short term because construction equipment and crews would be removed once construction is complete.

Construction disturbance would be limited to the extent practicable in accordance with BMPs and the Project's site certificate conditions. After construction is completed, disturbed areas, including temporary access roads not later used as Project access roads, would be restored as nearly as practicable to their original condition.

In general, vegetated areas that are temporarily disturbed or removed during construction of the Project would be restored as reasonably possible to pre-disturbance conditions. Areas with significant soil compaction and disturbance from construction activities would be revegetated in accordance with the Revegetation and Noxious Weed Management Plan (see Appendix N of the ASC).

3.5 OPERATION IMPACTS

Long-term visual effects during operation of the Project would result from the visibility of the aboveground components associated with the Project Turbines, solar arrays, substations, BESS, and transmission line. New access roads would also be constructed to reach Turbine and solar array locations. The greatest potential for local concern over the visual impacts of the Project is likely to be associated with residents who are non-participating landowners and would be exposed to relatively near views of Project Turbines and solar arrays.

Foreground views (0 to 0.5 miles) offer the maximum discernment of detail of the Turbines and solar arrays and adjacent landscape features. At this distance, Turbine towers and rotor blades are clearly seen, and the Turbines are generally dominant parts of the visual setting. Solar arrays at this distance would also be visible. Visual receptors within 0.5 mile of the Project would primarily have unobstructed views toward the Project. The strong vertical lines associated with the Turbines and horizontal lines of the solar arrays and associated infrastructure would contrast with the organic forms and colors of the existing landform and vegetation. While the existing substations, high-voltage transmission lines, communication towers, and existing Nine Canyon Wind Project are also visible from many of these locations, the Project would introduce strong contrast at this distance given the proximity of the visual receptors to Project facilities. Thirteen residences are located on non-participating properties that would have foreground views (less than 0.5 mile) of Project Turbines and solar arrays. These residences would represent locations of relatively high sensitivity to visual impacts from the Project.

Numerous visual receptors are in the middleground range, from 0.5 to 5 miles, primarily within nearby cities. For visual receptors located in the middleground, there is a transition toward the visual simplification of objects, textures, and overall shapes and patterns. At closer distances in the middleground, Turbine towers and blades and solar arrays can be distinctly seen. Details slowly fade with distance, and the visual dominance of individual Turbines and solar arrays—along with rotor visibility—begins to diminish. In the farther part of the middleground, individual Turbines and solar arrays tend to visually “merge” with the Turbine strings (side-by-side orientation) of which they are a part. The Project would also be seen in the context of the existing substations, high-voltage transmission lines, communication towers, and the Nine

Canyon Wind Project. Due to the distance of the Project and the existing human-made facilities in the landscape setting, the Project would be noticeable but may not appear to be a dominant feature in the landscape from some locations as the distance to Turbines and solar arrays extends to 5 miles or beyond.

For visual receptors traveling along I-82/U.S. Highway 395, which runs north-south through the Project Lease Boundary, roughly dividing it into western and eastern sections approximately 0.5 mile to the east and west, views toward the Turbines would be unobstructed. The light color and strong vertical lines created by the Turbines would attract attention. Views towards the solar arrays may occur when driving through areas within a mile of the solar arrays. The solar arrays would be darker in color and lower to the ground but could still attract attention. As such, the Project would create moderate to strong visual contrast within 10 miles of the Project Lease Boundary and would be a co-dominant feature in the landscape setting with the existing infrastructure and Nine Canyon Wind Project and existing transmission lines. Because travelers on I-82 would be approaching or parallel to the Project Lease Boundary only for a limited time and their focus would be on the road ahead, the degree of contrast would be reduced by the short view duration. Where there is existing vegetation or structures, views from local roads located 0.5 mile or more from the Project would be partially to completely screened by topography and/or vegetation and residential development. Portions of the Project that are visible would appear as vertical lines along the horizon and may be seen in the context of other human-made features such as the existing substations, high-voltage transmission lines, and the existing Nine Canyon Wind Project.

In the background (greater than 5 miles), individual Turbines and solar arrays become increasingly difficult to see, and strings of facilities begin to recede from view. For visual receptors located within 5 to 10 miles, the Project Turbines would be less distinct than foreground views and would appear more as vertical lines depending on comparative elevation. The solar arrays would likely be indiscernible greater than 5 miles from the Project. Visual receptors that are at a higher elevation would be able to see more of the Project's extent looking downslope, while other viewers with level or lower-elevation views would only see portions of the Project (e.g., blade tips during rotation). Within the context of existing views of development and infrastructure, as well as potential screening vegetation close to receptors, the Project would likely not create a dominant feature of the landscape and significant visual impacts would be unlikely at this distance.

There are five DNR state trust land parcels in the Project Lease Boundary (one parcel has solar arrays and transmission lines; three parcels have roads, crane paths, collection lines, and Turbines; and one has collection lines only) that are accessible for dispersed, informal recreation such as wildlife viewing, off-highway vehicle uses, and permitted hunting, depending on existing parcel-specific management. Based on the viewshed results, the land within these parcels would have views of the Project; however, public use is likely low and short term.

In addition, there are multiple designated public recreational opportunities in the immediate vicinity of the Project. Recreational areas located in or adjacent to the Project with foreground views are likely to have more views of the Project given the proximity to the Project infrastructure. Recreational areas located in the middleground would also likely have views of

the Project. These views may be intermittent or in certain areas of a larger recreation area. Where the elevation of the recreation area is lower, particularly recreation areas around the Columbia River, views are less likely to occur and may be intermittent as recreationists traverse the area; however, elevated views are more likely to see more components of the Project. In most areas, vegetation would likely not provide substantial screening of the Project, and where Turbines are visible, they may be several vertical lines in the foreground, middleground, or background distance. Three recreational areas, which represent views of a larger portion of the Project, were selected as representative viewpoints: McNary National Wildlife Refuge, Chandler Butte, and Badger Mountain and discussed in detail in Section 3.0.

The substation and interconnection facilities would introduce vertical and geometric structures into the landscape; the substation equipment would generally consist of open metal structures, and the transmission line support structures would include 110- to 135-foot-tall steel poles, as described earlier. Similarly, the perimeter fence would add an additional vertical element to the Project Lease Boundary. These features would also contrast with the surrounding natural environment, though they would not be as prominent as the Turbines and solar arrays.

4.0 MITIGATION MEASURES

The Applicant would incorporate the following measures into the Project's design to reduce the Project's potential for aesthetic impacts:

- 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, and also removing the gravel surface, regrading to preconstruction contours, restoring topsoil and decompacting 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 (Appendix N of the ASC).
- 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 only exterior lighting on the Turbines will be aviation warning lights and potentially mid-tower lighting, depending on the size of the tower, as required by the FAA.
- The Applicant will construct support facilities with non-reflective materials in muted tones, as well as the use of white or light gray, non-reflective paint to minimize the need for daytime aviation lighting and eliminate glare from the Turbines.

- Sensors and switches will 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 will be activated only during maintenance or emergency activities at night.

5.0 REFERENCES

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APPENDIX A: PHOTO SIMULATIONS

Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 1
Representative Viewpoint 1
Existing Conditions
and Project Simulations

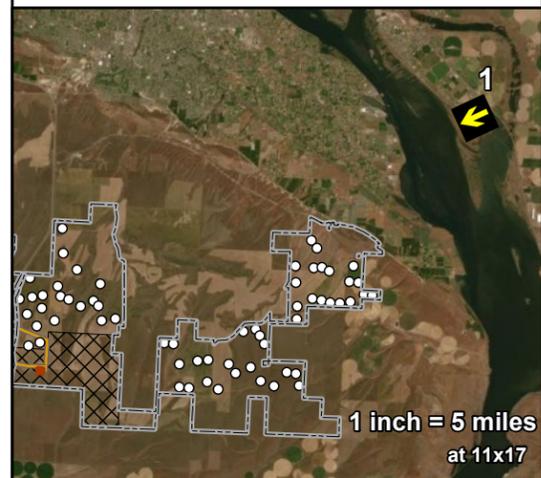
BENTON COUNTY, WA

-  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.

NOT FOR CONSTRUCTION



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 2
Representative Viewpoint 2a
Existing Conditions
and Project Simulations

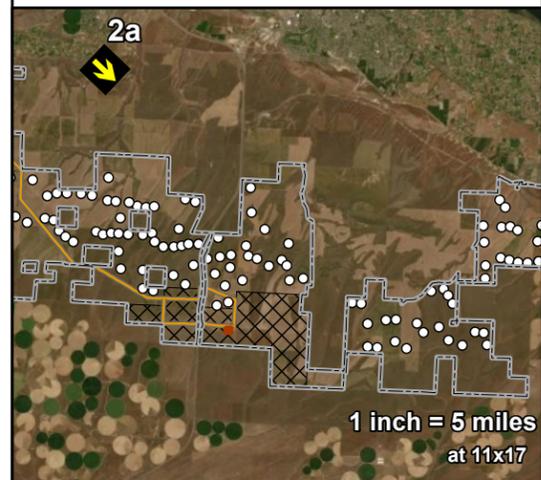
BENTON COUNTY, WA

-  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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 3
Representative Viewpoint 2b
Existing Conditions
and Project Simulations

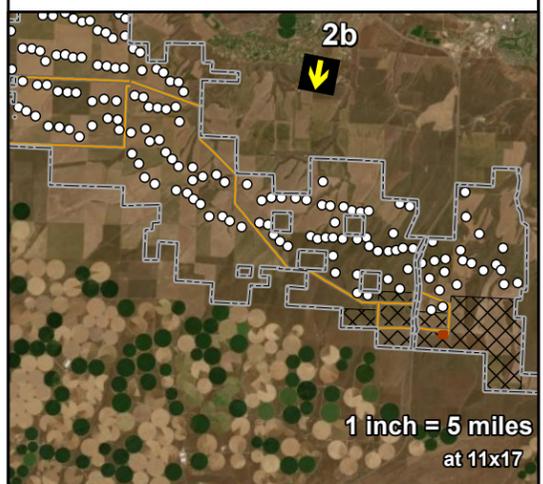
BENTON COUNTY, WA

- 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



**Horse Heaven
Wind Project**



**Figure 4
Representative Viewpoint 2c
Existing Conditions
and Project Simulations**

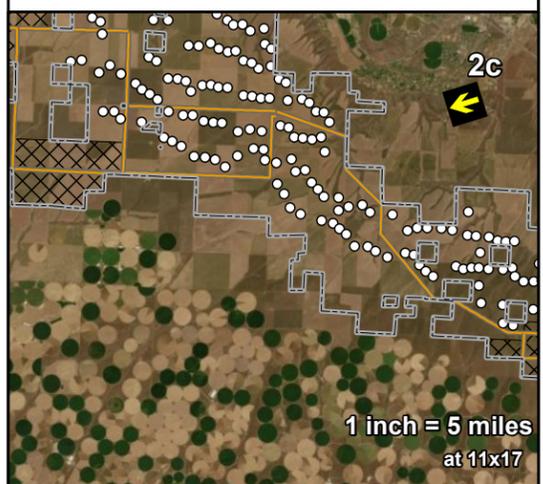
BENTON COUNTY, WA

-  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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 5
Representative Viewpoint 3
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):	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

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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 6
Representative Viewpoint 4a
Existing Conditions
and Project Simulations

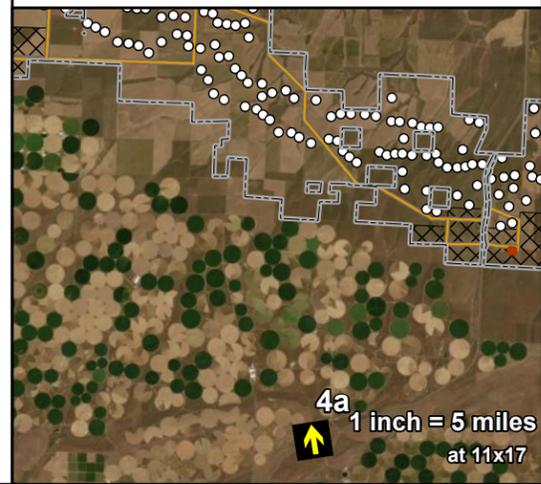
BENTON COUNTY, WA

-  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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 7
Representative Viewpoint 4b
Existing Conditions
and Project Simulations

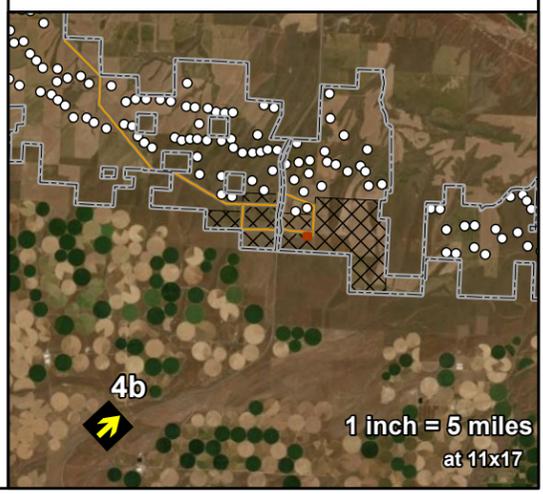
BENTON COUNTY, WA

- 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.

NOT FOR CONSTRUCTION



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 8
Representative Viewpoint 5
Existing Conditions
and Project Simulations

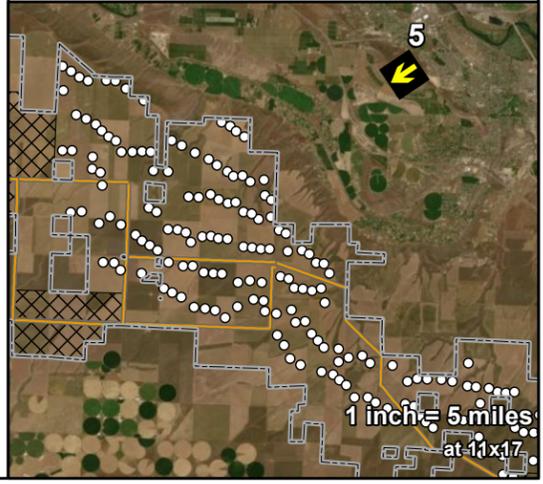
BENTON COUNTY, WA

-  Viewpoint Location and Photo Direction
-  Project Lease Boundary
-  Proposed Turbine Location
-  Proposed Transmission Line
-  Solar Siting Area

View direction (deg):	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

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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



**Horse Heaven
Wind Project**



**Figure 9
Representative Viewpoint 6
Existing Conditions
and Project Simulations**

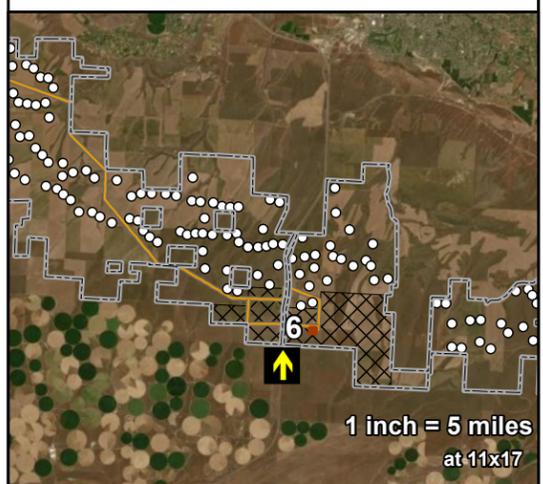
BENTON COUNTY, WA

- Viewpoint Location and Photo Direction
- Project Lease Boundary
- Proposed Turbine Location
- Proposed Substation/BESS
- Proposed Transmission Line
- Solar Siting Area

View direction (deg):	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

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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 10
Representative Viewpoint 7
Existing Conditions
and Project Simulations

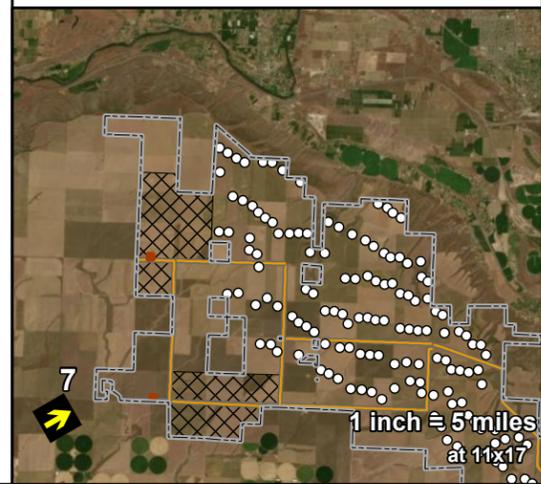
BENTON COUNTY, WA

-  Viewpoint Location and Photo Direction
-  Project Lease Boundary
-  Proposed Turbine Location
-  Proposed Substation/BESS
-  Proposed Transmission Line
-  Solar Siting Area

View direction (deg):	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

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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



**Horse Heaven
Wind Project**



**Figure 11
Representative Viewpoint 8a
Existing Conditions
and Project Simulations**

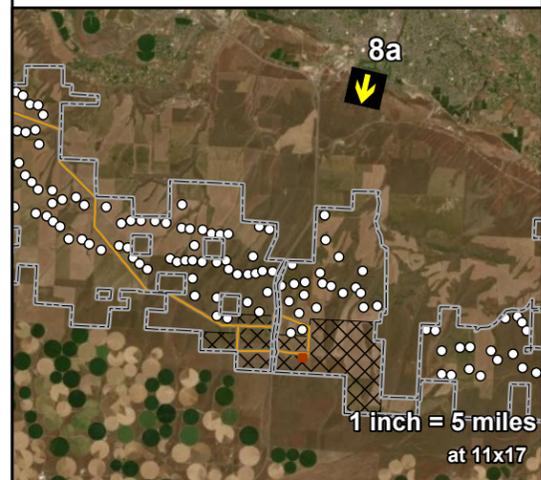
BENTON COUNTY, WA

-  Viewpoint Location and Photo Direction
-  Project Lease Boundary
-  Proposed Turbine Location
-  Proposed Substation/BESS
-  Proposed Transmission Line
-  Solar Siting Area

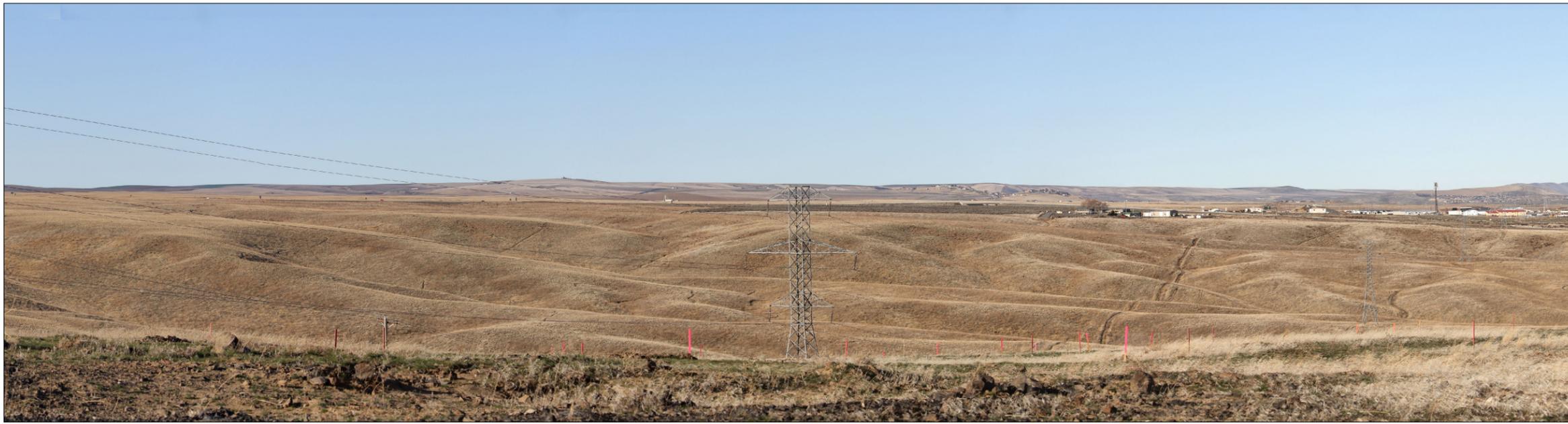
View direction (deg):	193
Horizontal field of view (deg):.....	57
Vertical field of view (deg):.....	15
Max. WTGs within field of view:...	43 / 20
Max. Visible WTGs at tip height:...	40 / 19
Max. Visible WTGs at hub height:...	37 / 15
Closest WTG (mi):.....	3.6 / 5.4
Furthest WTG (mi):.....	7.4 / 7.3
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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



**Horse Heaven
Wind Project**



**Figure 12
Representative Viewpoint 8b
Existing Conditions
and Project Simulations**

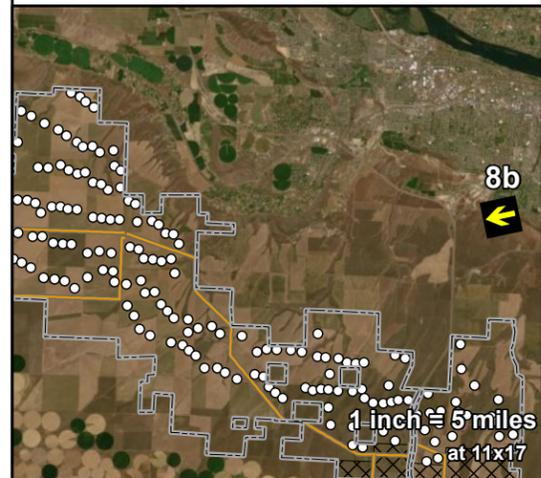
BENTON COUNTY, WA

-  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.

NOT FOR CONSTRUCTION



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven
Wind Project



Figure 13
Representative Viewpoint 9
Existing Conditions
and Project Simulations

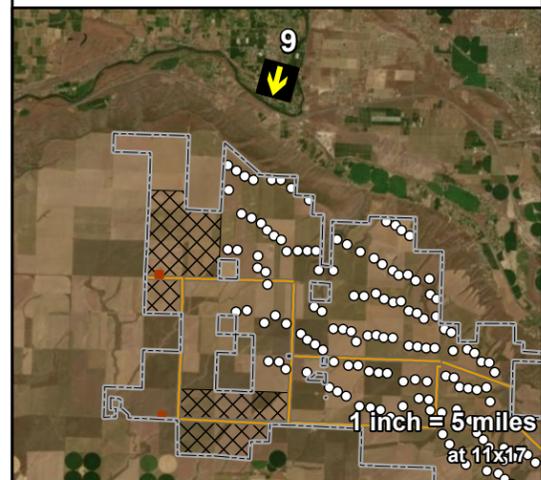
BENTON COUNTY, WA

-  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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 14
Representative Viewpoint 10
Existing Conditions and Project Simulations

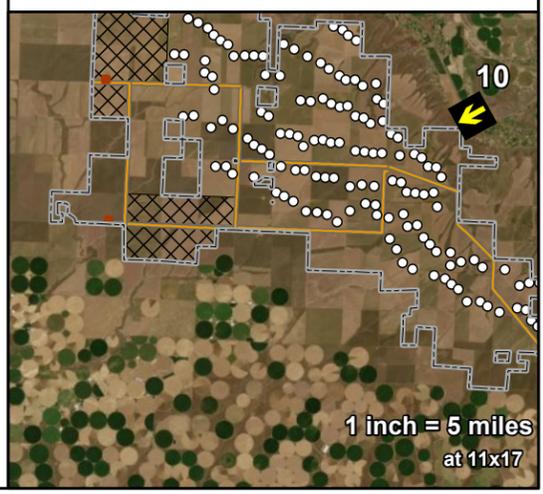
BENTON COUNTY, WA

-  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.

NOT FOR CONSTRUCTION



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



Horse Heaven Wind Project



Figure 15
Representative Viewpoint 11
Existing Conditions and Project Simulations

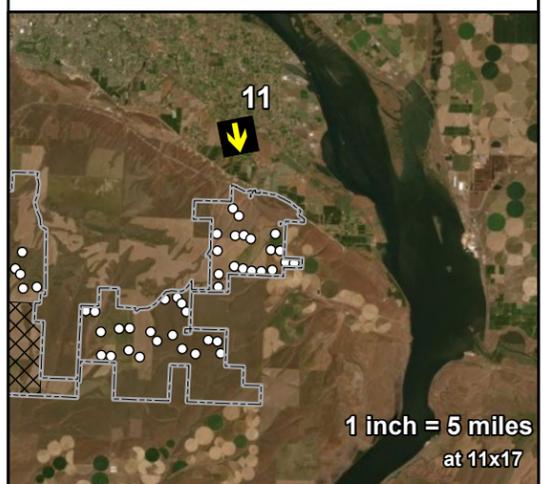
BENTON COUNTY, WA

-  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.

NOT FOR CONSTRUCTION



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



**Horse Heaven
Wind Project**



**Figure 16
Representative Viewpoint 12
Existing Conditions
and Project Simulations**

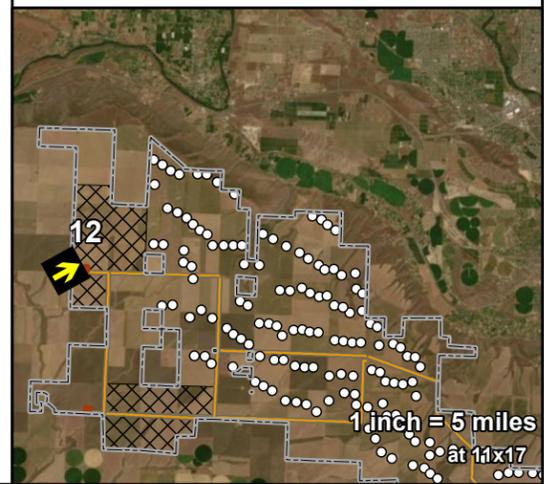
BENTON COUNTY, WA

- 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



Existing Conditions



Project Simulation Option 1
244 WTG



Project Simulation Option 2
150 WTG



**Horse Heaven
Wind Project**



**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.

NOT FOR CONSTRUCTION

