**Horse Heaven Wind Project EFSEC Review**
**Data Request No. 2 – Supplemental Response Package No. 1**
**July 16, 2021**

The following contains Scout's supplemental responses to EFSEC's data requests Earth-1, Earth-3, Air-1, Air-2, Surface Water and Wetlands-8, Vegetation-6, Vegetation-10, Wildlife-1, Wildlife-2, and Aesthetics-2 (partial response). Both the original response provided to EFSEC on 8/16/2021 as well as the new supplemental response is provided for each of these data requests.

Responses to the following items will be provided at a later date:

- Earth-2
- Earth-4
- Air-3
- Air-5
- Air-13
- Vegetation-3
- Vegetation-7
- Vegetation-9
- Vegetation-14
- Vegetation-18
- Vegetation-19
- Vegetation-22
- Wildlife-7
- Wildlife-8
- Wildlife-11
- Wildlife-17
- Energy and Natural Resources-1
- Cultural/Historic-1
- Cultural/Historic-2
- Cultural/Historic-3
- Cultural/Historic-5
- Aesthetics-2 (full response)
- Aesthetics-3
- Transportation-2

| Data Request 2 Item ID | Code Citation<br><br>Application Section | Item | Question or Information Request. | Applicant Response<br>*(bold text indicates response conclusion and Applicant commitments, including commitments to provide supplemental materials)* |
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| **Earth-1** | WAC: 463-60-302<br><br>Section 3.1 | Topography | Provide topographic map (or equivalent) to show proposed changes to topography from construction. | *--Original Response:*<br><br>The 2-foot contour data are available from surveys recently conducted for current existing topography on site. Proposed changes to topography will be part of the final construction package to be provided prior to Notice to Proceed with construction. This 2-foot topographic contour map will be provided to EFSEC under separate cover at a later date.<br><br>*--New Supplemental Response:*<br>**Attachment "Earth 1"** provides a detailed topographic map of existing conditions in areas where project components may be sited, based on recent site-specific surveys. The site survey was conducted to generate 1-foot contours in the vicinity of the solar siting areas, with 2-foot contours across the remainder of the Project area. Some portions of the lease boundary have not yet been surveyed to this level of detail; the map book retains the USGS 20-foot contours in these areas.<br><br>**Detailed grading plans to reflect precise changes to the existing topography will not be available until Turbines are selected and the precise equipment and required output of the solar arrays have been determined, which will occur after the site certification agreement has been issued and after power purchasers have confirmed the desired mix of energy sources to meet their needs.** Selection of locations for solar arrays, wind turbines, and supporting infrastructure generally is done in a manner to minimize the need for grading. However, some grading will be necessary in order to accommodate safe and effective placement of facilities. The following parameters will generally guide grading decisions during the final design process:<br><br>Site slopes that would be tolerable for the solar panels would be up to 14% maximum in all directions. Any slopes greater than 14% should either be avoided or graded to accommodate PV array placement. The site is typically graded to promote positive drainage and prevent ponding in the PV array areas. Other Project areas are typically graded as described here:<br><br>•Access roads and driveway entrances = maximum 10% slope<br>•Construction staging areas = maximum 10% slope<br>•BESS storage areas = preferable 2%- 5% slope<br>•Substation = preferable 2%-3% slope<br>•Slope grades away from buildings a minimum of 6 inches in 10 feet |

<table>
<tr><th>Data Request 2<br>Item ID</th><th>Code Citation<br><br>Application Section</th><th>Item</th><th>Question or Information Request.</th><th>Applicant Response<br>(bold text indicates response conclusion and Applicant commitments, including commitments to provide supplemental materials)</th></tr>
<tr><td></td><td></td><td></td><td></td><td>•WTG Areas are generally sloped at 2% away from the Turbine base/foundation.</td></tr>
<tr><td>Earth-3</td><td>WAC: 463-60-302<br><br>Section<br>3.1</td><td>Seismic Requirements</td><td>Confirm whether the applicable seismic Standard is 2018 IBC/ASCE 7-16 or the IBC 2015/ASCE 7-10 Standard as referenced in the application.<br><br>Confirm compliance with Washington State Building Code for foundations and structures.</td><td><u>--Original Response:</u><br>The Project will comply with Seismic Standard 2018 IBC/ASCE 7-16. Information related to compliance with the Washington State Building Code for foundations and structures will be provided to EFSEC under separate cover at a later date.<br><br><u>--New Supplemental Response:</u><br>The seismic standard will be IBC 2018/ASCE 7-16 as stated in the Washington State Building Code 2018. The Project will need to comply with the 2018 Washington State Building Code; Section 1613 (Earthquake Loads) apply.</td></tr>
<tr><td>Air-1</td><td>WAC: 463-60-312<br><br>Section<br>3.2.1.3</td><td>Background Air Quality</td><td>Provide background ambient air quality data for the Project Area or the nearest representative air monitoring station for the previous three (3) years.</td><td><u>--Original Response:</u><br>A summary of background ambient concentration data from representative monitoring stations for the most recent 3-year period available will be provided to EFSEC under separate cover at a later date.<br><br><u>--New Supplemental Response:</u><br><u>Background ambient air quality data from U.S. EPA’s AirData Air Quality Monitors application is summarized in the table below for the three most recent years available.</u> Measured concentrations for each pollutant were obtained from the nearest available monitor site that included data for all three years in the 2018-2020 period (with the exception of PM10, for which concentrations were taken from the Kennewick – Metaline monitor site, which has data available for 2019 through 2021 to date). SO2 concentrations were taken from the Portland, Oregon monitor site because the nearest site (Wenatchee) did not provide data in the required units of the NAAQS standard.<br><br>As shown, background ambient air quality complies with all NAAQS standards over the most recent available 3-year period, with the exception of PM10. The maximum second highest value recorded in 2020 is most likely attributable to an exceptional event related to the Pacific Northwest wildfires of 2020.<br><br>
<table>
<tr><th rowspan="2">Pollutant</th><th rowspan="2">Averaging period</th><th rowspan="2">Units</th><th rowspan="2">Monitor site</th><th colspan="4">Measured concentration /a</th><th rowspan="2">NAAQS standard</th></tr>
<tr><th>2018</th><th>2019</th><th>2020</th><th>Avg.</th></tr>
<tr><td rowspan="2">CO</td><td>1-hour</td><td>ppm</td><td rowspan="2">Portland - SE Lafayette (41-051-0080)</td><td>1.9</td><td>1.8</td><td>15.1</td><td>6.3</td><td>35 /b</td></tr>
<tr><td>8-hour</td><td>ppm</td><td>1.6</td><td>1.6</td><td>14.1</td><td>5.8</td><td>9 /b</td></tr>
<tr><td rowspan="2">$NO_2$</td><td>1-hour</td><td>ppb</td><td rowspan="2">Portland - SE Lafayette (41-051-0080)</td><td>35.4</td><td>31.5</td><td>29.4</td><td>32.1</td><td>100 /c</td></tr>
<tr><td>Annual</td><td>ppb</td><td>8.6</td><td>7.7</td><td>6.4</td><td>7.6</td><td>53 /d</td></tr>
<tr><td>Ozone</td><td>8-hour</td><td>ppm</td><td>Kennewick S Clodfelter Rd (53-005-0003)</td><td>0.073</td><td>0.061</td><td>0.061</td><td>0.065</td><td>0.070 /e</td></tr>
<tr><td rowspan="2">$PM_{2.5}$</td><td>24-hour</td><td>µg/m$^3$</td><td rowspan="2">Toppenish - Ward Rd (Yakama Tribe) (53-077-0015)</td><td>50.4</td><td>34.4</td><td>90</td><td>58.3</td><td>35 /f</td></tr>
<tr><td>Annual</td><td>µg/m$^3$</td><td>11.1</td><td>9.8</td><td>14.5</td><td>11.8</td><td>12.0 /g</td></tr>
<tr><td rowspan="2">$SO_2$</td><td>1-hour</td><td>ppb</td><td rowspan="2">Portland - SE Lafayette (41-051-0080)</td><td>2.8</td><td>2.5</td><td>2.3</td><td>2.5</td><td>75 /h</td></tr>
<tr><td>3-hour</td><td>ppb</td><td>2.4</td><td>2.6</td><td>2.2</td><td>2.4</td><td>500 /i</td></tr>
<tr><td>Lead</td><td>Rolling 3-month</td><td>µg/m$^3$</td><td>Chico, CA - Chico-East Avenue (06-007-0008)</td><td>0.0935</td><td>0.0033</td><td>0.0026</td><td>0.0331</td><td>0.15 /j</td></tr>
<tr><td rowspan="2">$PM_{10}$</td><td rowspan="2">24-hour</td><td rowspan="2">µg/m$^3$</td><td rowspan="2">Kennewick - Metaline (53-005-0002)</td><td>2019</td><td>2020</td><td>2021</td><td>Avg.</td><td>NAAQS standard</td></tr>
<tr><td>65</td><td>566</td><td>88</td><td>240</td><td>150 /k</td></tr>
</table>
Notes: ppm = parts per million; ppb = parts per billion; µg/m$^3$ = micrograms per cubic meter<br>
/a All concentrations are presented in the same statistical form as the corresponding NAAQS standard, as noted below.<br>
/b Not to be exceeded more than once per year. Values shown are for the maximum second highest value in each year.<br>
/c 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years.<br>
/d Annual mean.<br>
/e Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years.<br>
/f 98$^{th}$ percentile, averaged over 3 years.</td></tr>
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| | | | | /g Annual mean, averaged over 3 years.<br>/h 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.<br>/i Not to be exceeded more than once per year. Values shown are for the maximum second highest value in each year<br>/j Not to be exceeded. Values shown are for the maximum quarterly average value in each year.<br>/k Not to be exceeded more than once year on average over 3 years. Values shown are for the maximum second highest value in each year. |
| **Air-2** | WAC: 463-60-312<br><br>Section 3.2.1.2 | Background Meteorological Conditions | Provide quarterly and annual wind and atmospheric stability roses for the Project Area or the nearest representative monitoring station for at least one full year. | *--Original Response:*<br>A summary of background meteorological conditions, including wind roses, will be provided to EFSEC under separate cover at a later date using data from the nearest representative monitoring station.<br><br>*--New Supplemental Response:*<br>**See the figures in Attachment "Air-2" which present annual and quarterly wind roses and atmospheric stability roses generated using Lakes WRPLOT.** Wind speed, wind direction, and stability parameter observations were taken from the Richland, Washington meteorological station (KRLD), which is the closest station to the project site. The annual wind and stability roses are based on one full year of data from 2020, while the quarterly wind and stability roses are based on 2020 data by seasonal quarters (Dec & January-February 2020, March-May 2020, June-August 2020, and September-November 2020). |
| **Surface Water and Wetlands-8** | WAC: 463-60-540 | Thirty-three non-wetland water features were discovered within the Project Area, 31 ephemeral streams and two intermittent streams. It is unclear in the application if stream crossings will be required or how the applicant anticipates traversing the stream features.<br><br>Ecology typically requires a Jurisdictional Determination (JD) from the U.S. Army Corps of Engineers (Corps) verifying the waters are non-federally jurisdictional prior to beginning the permitting process. | Describe each anticipated stream crossing and how the Project expects to traverse streams.<br><br>Confirm whether Corps has issued a Jurisdictional Determination (JD) for the Project. | *--Original Response:*<br>The updated wetland delineation report, incorporating 2021 surveys, will be submitted to the U.S. Army Corps of Engineers for a jurisdictional determination. Details regarding the engineering of the stream crossing design will be provided to EFSEC under separate cover at a later date.<br><br>*--New Supplemental Response:*<br>**The general strategy for the stream crossings is as follows. Detailed design of each stream crossing will be determined during the design phase.**<br><br>Solar Area Layouts**:** Solar array placements are limited to a maximum slope of 14% and steep canyon areas (where streams run) should be avoided. In most cases, collector lines would run overhead at these canyon areas or be routed around them. In cases where buried collector lines do need to cross a stream, wetland, or drainage ditch/swale, this is typically accomplished by boring beneath the stream bed. If access roads are required to cross a stream bed, then a suitably sized culvert should be installed to permit through flow. A hydrologic and hydraulic (H&H) analysis is required to be performed to analyze the stream flow and properly size any installed culvert(s), water crossing, or bridge structures, if required. Where possible, the access roads may be routed around stream beds.<br><br>Wind Turbine Generator (WTG) Layouts**:** For the WTG layouts, it is primarily collection lines that will cross the identified streams. If the stream crossing is in a steep canyon then the collection line is typically strung overhead, and in other areas the collection line is typically bored under the existing stream or drainage bed. Where collector and transmission lines cross Sheep Canyon and Webber Canyon, we can confirm that the lines would run overhead, and disturbance of stream features and adjacent steeply sloped habitat would be avoided. Most access roads are placed at saddles between the high points, but where streams must be crossed then a suitably sized culvert would be designed and installed to permit through flow. An H&H analysis is required to be performed to analyze the stream flow and properly size any installed culvert(s), water crossings, or bridge structures, if required. Where possible, the access roads may be routed around stream beds. Locating WTG foundations on stream beds should be avoided due to stability design constraints resulting from buoyancy, for example.<br><br>**Furthermore, general strategy for collection systems crossing streams or wetlands based on configuration (direct buried or overhead) are as follows:**<br><br>Direct Buried**:** Conductors shall be installed below grade. Direct buried conductors shall be rated for direct burial and installed a minimum of 36" below grade in a clean fill material free of stones larger than 3/8" diameter within 12" of conductors. All other backfill will be free of stones larger than 6". A 3-inch-wide metal foil detectable marker tape shall be placed 12" below grade continuously over the conductors. A bare copper equipment grounding conductor sized per the plans shall be routed with the feeder. |

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| | | | | Overhead**:** Output collection circuits shall transition to overhead wiring from the switchgear to the solar substation, with some underground before entering the substation. Overhead wiring and poles shall be routed so as to minimize shading on the solar arrays. Wood or steel poles can be used in the design for the overhead collector circuits.<br><br>**The updated wetland delineation report, incorporating 2021 surveys, was submitted to USACE for a jurisdictional determination on August 27, 2021.** |
| **Vegetation-6** | WAC: 463-60-332<br><br>Section 3.4.2 | Plant species at risk (vascular and non-vascular) in the remaining unsurveyed areas. | Discuss the impacts of the Project on populations of vascular and non-vascular plant species at risk, including:<br>– the number of individuals or populations that will be impacted by the Project;<br>– the number of known populations adjacent to the Project boundary;<br>– the type of habitats where plant species at risk may occur; and<br>– the potential for plant species to occur in similar habitats within the Project. | *--Original Response:*<br>This data request was responded to in the previous round of requests (i.e., in version 1 of the initial data request). As stated earlier:<br><br>Known populations of special-status plants within 5 miles of the Project Lease Boundary are discussed in the Botany and Habitat Survey Report (Tetra Tech 2020). Attachment A in the Botany and Habitat Survey Report (Tetra Tech 2020) provides a description of habitat characteristics for special-status species with potential to occur at the Project, and describes the potential for the species to occur based on the proximity of known occurrences to the Project and the presence of suitable habitat at the Project.<br><br>No individuals or populations of special-status vascular plants will be impacted by the Project; complete surveys were conducted for special-status vascular plants species within the Project Micrositing Corridor and Solar Siting Areas and none were found in the area. Woven-spore lichen is the only listed non-vascular species with potential to occur at the Project. The locations of previously identified woven-spore lichen in the vicinity of the Project are described in Tetra Tech's 2020 Botany and Habitat Survey Report (Appendix K to the ASC). In lieu of non-vascular species surveys, as discussed on a June 17, 2021 call with EFSEC/Golder, the Applicant is conducting a habitat suitability assessment for this species to quantify potentially suitable habitat at the Project (see habitat description in response to Hab-5 in DR #1).<br><br>The results of this habitat suitability assessment will be provided along with the 2021 Botany and Habitat Survey Report.<br><br>*--New Supplemental Response:*<br>**The 2021 Botany and Habitat Survey Report for Horse Heaven Wind Farm is provided as Attachment "Vegetation-6". Updated habitat impact calculations and maps are also provided.**<br><br>The 2020 and 2021 survey reports provide detail on special-status plant species with the potential to occur in the vicinity of the site along with habitat types within which they may occur. In addition, although field surveys were focused on special status vascular plants, a habitat suitability assessment for wove-spore lichen was conducted to identify potential suitable habitat within the Project lease boundary for this species (see Attachment C to the 2021 botanical survey report). Based on this assessment, approximately 18.9 acres within the Wind Energy Micrositing Corridor and Solar Siting Areas may provide suitable habitat for this non-vascular species.<br><br>The attached updated Table 3.4-1 in **Attachment "Vegetation-6"** provides acreages of each habitat subtype identified within the micrositing corridor and solar siting areas, and Table 3.4-14 provides estimated temporary, modified, and permanent impacts to each habitat type. **As described in the 2020 botanical survey report (provided with the ASC) and the 2021 survey report (see Attachment "Vegetation-6"), no special-status vascular plant species were observed within the study area, and very little suitable habitat for special status plant species was observed.** |
| **Vegetation-10** | WAC: 463-60-332<br><br>Section 3.4.2.1<br>Table 3.4-14<br>Appendix K | Botany and habitat survey reports indicate 44 of 244 proposed turbine locations were surveyed. | Explain why only a small proportion of the areas of direct disturbance are field verified.<br><br>Describe how baseline surveys inform Project layout.<br><br>Describe how the Project's layout changed to avoid impacts to habitat and vegetation. | *--Original Response:*<br>All areas of potential direct disturbance have now been field verified. The vast majority of the Turbine locations are within active agricultural lands. Surveys in 2020 were conducted within the 44 Turbine locations believed to be sited in non-agricultural lands based on previous habitat mapping. Surveys in 2021 field-verified habitat types within the entire Micrositing Corridor and Solar Siting Areas. This included all Turbine locations not previously surveyed in 2020. The results of the 2021 surveys will be provided in the 2021 Botany and Habitat Survey Report that is currently being prepared.<br><br>Baseline surveys informed the Project layout in a number of ways. First, Turbines were relocated be at least 0.25 miles from raptor nests based on guidance provided by WDFW and Larson et al. (2004) (see responses to EFSEC's Data Request 1 for more details). Turbines were not placed in topographic low points, drainages. or swales where shrub-steppe habitat is common. The Project layout was also revised in 2020 to minimize |

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| | | | Explain how Priority Habitats (other than wetlands and riparian areas), such as dwarf shrub and shrub-steppe habitat, influenced the layout. | impacts to shrub-steppe habitat in the northeastern portion of the Project area following the baseline surveys conducted in 2020. Additional leases and portions of leases were terminated to reduce the Project footprint east of the Project site along the Columbia River.<br><br>*--New Supplemental Response:*<br>**With completion of the 2021 Botany and Habitat Survey Report (see Attachment "Vegetation-6"), the Project micrositing corridor and solar siting areas have now been fully field-verified.**<br><br>**The Project layout has evolved over time** to site Turbines at greater distance from the Columbia River. In the early stages of siting, numerous steps were also taken to optimize the layout to maximize energy generation potential while minimizing impacts to resources, such as avoidance of the BLM lands to the northwest. Noise impacts, impacts to Department of Defense radar facilities, and impacts to habitat all were considered and resulted in modification of the Project layout to reduce or avoid impacts to these resources. In addition, the Project has been designed to accommodate availability of interested landowners and availability of transmission lines with capacity to transmit power. A proposed point of interconnection with the BPA grid at Red Mountain was abandoned primarily due to concerns associated with agricultural and viewshed interests. Early Project layouts went through multiple iterations as each of these separate factors was considered in conjunction with the others.<br><br>**More specifically with regard to habitat and vegetation**, preliminary (desktop) habitat mapping was done to identify priority habitats, and to the extent possible, these were avoided in developing Turbine and solar layouts. As the final design is developed, further refinement will occur to continue to reduce impacts to all resources where possible, while still meeting the Project's purpose to generate clean renewable energy (see proponent purpose and need statement, transmitted to EFSEC on July 19, 2021).<br><br>**In general, the majority of the Project is sited in cultivated lands;** 80 percent of the micrositing corridor, and 79 percent of the solar siting areas, are on developed or disturbed land (see attached updated Table 3.4-14 in Attachment "Vegetation-6"). Based on the preliminary layout as presented in the Project Application for Site Certification, within the micrositing corridor 85 percent of permanent disturbance would be on developed or disturbed land, while permanent disturbance to shrubland has been limited to 4 percent of the total disturbance area. The preliminary solar layout is also primarily sited on agricultural land to minimize disturbance to habitat and vegetation, with 84 percent of permanent and modified disturbance occurring on this type.<br><br>**Because the majority of this area is already farmed where the topography is suitable, land that is suitable for solar development (generally flat) results in minimizing impacts to priority habitats**. However, in a few cases the highest value wind resource coincides with uncultivated land, and three wind turbines were retained on shrub-steppe land for this reason while other sites under consideration were dropped to reduce impacts. To the extent practicable, during final design, impacts to shrub-steppe land in the western portion of the Bofer Canyon solar siting area will be minimized because this is where the majority of solar impacts to rabbitbrush shrubland occur. |
| **Wildlife-1** | WAC: 463-60-332<br><br>Section 3.4.2.1 Appendix M | Wildlife | Provide information on regional wildlife population trends, including adjacent to the project.<br><br>Provide an analysis of potential effects to special status wildlife, including anticipated potential changes in populations, changes in behavior patterns, and changes in habitat use. Quantitative analysis of effects is preferred, where feasible. | *--Original Response:*<br>**Populations of regional wildlife populations are likely to fluctuate annually, independent of the Project. Populations are typically affected by larger-scale processes such as climate change, which influences a myriad of factors for wildlife (Yang et al. 2021). The on-going drought in eastern Washington will continue to effect trophic interactions within the ecosystem, modifying prey base, vegetation, water resources – all which affect wildlife populations.**<br><br>Pronghorn populations in the adjacent Yakima Reservation may overwinter in the Horse Heaven Hills and are increasing (Fidorra et al. 2019). Current minimum population estimates are approximately 250 animals (M. Ritter, WDFW, pers. comm). Reintroduction efforts continue with tribal entities.<br><br>The Project is located in the Columbia Plateau Mule Deer Management Zone within Game Management Unit 373 (WDFW 2016). The Project and surrounding Horse Heaven Hills is considered part of the mule deer "limited range" which is defined as habitat which are occasionally inhabited and/or contain small populations of scattered mule deer (WAFWA 2004). Mule deer are present throughout most of the Columbia Plateau Mule Deer Management Zone (MDMZ) at varying densities depending upon locality and habitat quality, with the exception of the largest irrigated parcels within the Columbia Basin Irrigation Project in the center of the MDMZ (WDFW 2016). The robust and stable populations in the region are reflected in the fact that more mule deer are harvested in the Columbia Plateau MDMZ than in any other MDMZ and harvest has remained stable since 2001 (WDFW 2016). |

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| | | | | Population estimates for non-game wildlife species are typically unavailable or outdated because they are non-revenue-producing species that do not receive prioritized government funding (WDFW 2016). However, WDFW provides periodic status reviews for special status species or species of special concern. (https://wdfw.wa.gov/sites/default/files/2021-03/wdfwspeciesstatusandrecoveryplanlist.pdf). Please see the Bird and Bat Conservation Strategy (BBCS) for a summary of bird species of special concern that were observed at the Project.<br><br>**Bird response to Turbines is species-specific and behavioral changes such as displacement (relative density or abundance estimates in proximity to turbines) involve a number of factors such as species habitat requirements, available habitat on the landscape and pre-existing disturbances. Gillespie (2013) found mixed effects of grassland bird displacement in Iowa.** Shaffer and Buhl (2016) found displacement and attraction to Turbines over a five-year period in the Dakotas, and similar species-specific displacement patterns were observed in patterns were observed in Wisconsin (Garvin et al. 2011). The most abundant small bird species documented during 2017-2019 avian use surveys was horned lark, which is a widely distributed species with a stable population in Washington over the past two decades (Sauer et al. 2019).<br><br>*--New Revised Supplemental Response:*<br>This information has been updated from the original Data Response 2 package to provide additional detail related to the recent state listing of ferruginous hawk as a state endangered species.<br><br>**Regional wildlife populations are likely to fluctuate annually, independent of the Project. Populations are typically affected by larger-scale processes such as climate change, which influences a myriad of factors for wildlife (Yang et al. 2021). The on-going drought in eastern Washington will continue to affect trophic interactions within the ecosystem, modifying prey base, vegetation, water resources – all which affect wildlife populations. In response to the recent up listing of ferruginous hawk by the Washington Fish and Wildlife Commission to endangered status, additional Project-specific information for the hawk is provided in Attachment Wildlife-1.**<br><br>Pronghorn populations in the adjacent Yakama Reservation may overwinter in the Horse Heaven Hills and are increasing (Fidorra et al. 2019). Current minimum population estimates are approximately 250 animals (M. Ritter, WDFW, pers. comm). Reintroduction efforts continue with tribal entities.<br><br>The Project is located in the Columbia Plateau Mule Deer Management Zone within Game Management Unit 373 (WDFW 2016). The Project and surrounding Horse Heaven Hills is considered part of the mule deer “limited range” which is defined as habitat which are occasionally inhabited and/or contain small populations of scattered mule deer (WAFWA 2004). Mule deer are present throughout most of the Columbia Plateau Mule Deer Management Zone (MDMZ) at varying densities depending upon locality and habitat quality, with the exception of the largest irrigated parcels within the Columbia Basin Irrigation Project in the center of the MDMZ (WDFW 2016). The robust and stable populations in the region are reflected in the fact that more mule deer are harvested in the Columbia Plateau MDMZ than in any other MDMZ and harvest has remained stable since 2001 (WDFW 2016).<br><br>Population estimates for non-game wildlife species are typically unavailable or outdated because they are non-revenue-producing species that do not receive prioritized government funding (WDFW 2016). However, WDFW provides periodic status reviews for special status species or species of special concern. (https://wdfw.wa.gov/sites/default/files/2021-03/wdfwspeciesstatusandrecoveryplanlist.pdf). Please see the Bird and Bat Conservation Strategy (BBCS) for a summary of bird species of special concern that were observed at the Project.<br><br>**Bird response to Turbines is species-specific and behavioral changes such as displacement (relative density or abundance estimates in proximity to turbines) involve a number of factors such as species habitat requirements, available habitat on the landscape and pre-existing disturbances.** Gillespie (2013) found mixed effects of grassland bird displacement in Iowa. Shaffer and Buhl (2016) found displacement and attraction to Turbines over a five-year period in the Dakotas, and similar species-specific displacement patterns were observed in patterns were observed in Wisconsin (Garvin et al. 2011). The most abundant small bird species documented during 2017-2019 avian use surveys was horned lark, which is a widely distributed species with a stable population in Washington over the past two decades (Sauer et al. 2019). |
| **Wildlife-2** | WAC: 463-60-332<br><br>Section 3.4.2<br>Appendix M | Wildlife | Provide details regarding the anticipated risk of aerial turbine collisions based on season, day/night, and weather.<br>Identify specific mitigation measures that could be implemented to reduce collision risk during peak risk periods (i.e., inclement weather). | *--Original Response:*<br>**Seasonally, the highest risk of collision is typically when species are most abundant and flying at a height within the rotor swept area (RSA). Seasonally, risk is higher during the spring and fall for birds that migrate through the area to nesting areas located north (spring) or over wintering areas (fall).** Nest species, such as resident raptor like American kestrel and red-tailed hawk, are likely a great risk of collision with turbines during the spring and summer as they establish territories, provision nests, and young fledge from the nest navigating a new, novel landscape. Post construction fatality monitoring studies at wind projects throughout North America have recorded higher fatalities in late summer and fall, when migratory tree and leaf roosting bats pass through the region (Goldenberg et al. 2021). Weather patterns may play a role in bat |

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| | | | | fatalities as well; a review of 21 post-construction monitoring studies found the relationships between bat fatalities and weather patterns resulted in more bats were killed on nights with low wind speed (<6 m/sec) and that fatalities increased immediately before and after passage of storm fronts (Arnett et al. 2008). Conversely, high wind speeds may increase the collision risk for raptors, as they tend to soar and kite into the wind, thus increasing their exposure to collision when flying within the rotor swept area (Hoover and Morrison 2005).<br><br>Avian collision fatality data from studies conducted at 30 wind farms across North America were examined to estimate how many night migrants collide with Turbines and towers, and how aviation obstruction lighting relates to collision fatalities. Fatality rates, adjusted for scavenging and searcher efficiency, of night migrants at Turbines 54 to 125 meters in height ranged from <1 bird/Turbine/year to ~7 birds/Turbine/year with higher rates recorded in eastern North America and lowest rates in the west. Multi-bird fatality events (defined as >3 birds killed in 1 night at 1 Turbine) were rare, recorded at <0.02% ($n$ = 4) of ~25,000 Turbine searches. Lighting and weather conditions may have been causative factors in the four documented multi-bird fatality events, but flashing red lights (L-864, recommended by the Federal Aviation Administration [FAA]) were not involved, which is the most common obstruction lighting used at wind farms. A Wilcoxon signed-rank analysis of unadjusted fatality rates revealed no significant differences between fatality rates at Turbines with FAA lights as opposed to Turbines without lighting at the same wind farm (Kerlinger et al. 2010).<br><br>**Minimization measures that will be implemented during the construction and decommissioning of the Project are included in the BBCS (see Section 7). Pertaining to inclement weather when collision risk may increase, minimization measures include down lighting of all lights to reduce attraction of nocturnal migratory birds and FAA mandated obstruction lighting on turbines which have been shown to reduce collision risk compared to white non-flashing lighting commonly found on communication towers (Kerlinger et al. 2010).**<br><br>*--New Revised Supplemental Response:*<br>This information has been updated from the original Data Response 2 package to provide additional detail and clarifications.<br><br>**Seasonally, the highest risk of collision is typically when species are most abundant and flying at a height within the rotor swept area (RSA). Two raptor species with higher abundance during pre-construction surveys included American kestrel and red-tailed hawk which are likely at greater risk of collision with Turbines during the spring and summer as they establish territories, provision nests, and young fledge from the nest navigating a new, novel landscape. Seasonally, risk is higher during the spring and fall for birds that migrate through the area to nesting areas located north (spring) or over wintering areas (fall).** Post construction fatality monitoring studies at wind projects throughout North America have recorded higher fatalities in late summer and fall, when migratory tree and leaf roosting bats pass through the region (Goldenberg et al. 2021). Weather patterns may play a role in bat fatalities as well; a review of 21 post-construction monitoring studies found the relationships between bat fatalities and weather patterns resulted in more bats were killed on nights with low wind speed (<6 m/sec) and that fatalities increased immediately before and after passage of storm fronts (Arnett et al. 2008). Conversely, high wind speeds may increase the collision risk for raptors, as they tend to soar and kite into the wind, thus increasing their exposure to collision when flying within the rotor swept area (Hoover and Morrison 2005).<br><br>Avian collision fatality data from studies conducted at 30 wind farms across North America were examined to estimate how many night migrants collide with Turbines and towers, and how aviation obstruction lighting relates to collision fatalities. 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A Wilcoxon signed-rank analysis of unadjusted fatality rates revealed no significant differences between fatality rates at Turbines with FAA lights as opposed to Turbines without lighting at the same wind farm (Kerlinger et al. 2010).<br><br>**Minimization measures that will be implemented during the construction and decommissioning of the Project are included in the BBCS (see Attachment M to the ASC). Pertaining to inclement weather when collision risk may increase, minimization measures include down lighting of all lights to reduce attraction of nocturnal migratory birds and FAA mandated obstruction lighting on turbines which have been shown to reduce collision risk compared to white non-flashing lighting commonly found on communication towers (Kerlinger et al. 2010).** |
| **Aesthetics-2** | WAC: 463-60-362 | The selection of representative | Provide panoramic photos (similar to those provided in Appendix Q of the | *--Original Response:* |

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| | Section 4.2.3 Appendix Q | viewpoints for field survey, simulations, and analysis are predominately middle-ground viewing distance zone (0.5 to 5 miles) and do not represent foreground (less than 0.5 miles) viewing opportunities. Few of the viewpoints represent local communities or residential areas in the Tri-Cities area.<br><br>It is acknowledged in the ASC that there are 13 non-participating landowners within a foreground viewing distance that would be exposed to relatively near views of the Project. It's illustrated in the ASC that there is potential visibility of the Project from nearby communities and residential areas (Figures 4.2.3-1 to 4.2.3-6). Comments received as part of the public scoping process identified a lack of representative viewpoints in nearby residential subdivisions or foreground areas. | ASC) of the existing condition of the Project area from a representative viewing location in the following residential communities:<br><br>• Benton City<br>• Badger<br>• Kennewick (Canyon Lakes area)<br>• Highland<br><br>These viewing locations should provide relatively unobstructed views towards the Project area and represent public viewing opportunities within these communities.<br><br>Provide panoramic photos of the existing condition of the Project area from the following representative rural residential viewing location within a foreground viewing distance zone (0 to 0.5 miles):<br><br>• Along County Well Rd (near the County Well Road Solar Array location) – view towards solar array and turbines<br>• Near Sellards Rd and Travis Rd – view towards transmission line and turbines | Proposed photo locations have been provided to EFSEC for review corresponding to the identified locations. With EFSEC's concurrence on the proposed locations, these photos will be provided to EFSEC under separate cover at a later date.<br><br>*--New Supplemental Response (Partial Response; the full response is pending):*<br><br>See **Attachment "Aesthetics-2"** for existing panoramic photos representing locations listed below. These photos were taken in 2020 and will be used to generate simulations to be provided in a later response. The following locations are shown in the attached panoramic photos:<br><br>Benton City – see Photo 17a<br>Badger – see Photo 21b<br>Kennewick (Canyon Lakes Area) – see Photos 7b-1 and 7b-2<br><br>As discussed during our call with EFSEC on September 7, 2021, initial photos taken at the remaining locations were too hazy to provide good visibility of the Project area due to smoke conditions from area wildfires. **Photos from Highland, along County Well Rd, and near Sellards Rd, will be provided as soon as conditions allow clear viewing of the Project area.** |

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# Attachment Earth-1

# Attachment Air-2

# Attachment Vegetation-6

# Attachment Wildlife-1

# Attachment Aesthetics-2